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AN SOA PROJECT ON COMMUNICATING THE FINANCIAL HEALTH OF PUBLIC PENSION PLANS

By Sandy Mackenzie

The financial position of many state and local pension plans has deteriorated over the past decade. Public plans typically hold 50 percent or more of their assets in equities; some of this deterioration reflects the effect of the 2008-2009 stock market collapse on the value of the assets of public plans. This decline has by now been reversed. Nonetheless, many state and local plans are still substantially underfunded. The data collected by the Public Fund Survey as of mid- to end-2013, is based on the estimates of state plans, which typically assume a discount rate of 7.5 to 8.0 percent. This survey finds that about one-in-five plans, including some of the country's largest, is estimated to have funding (asset to liability) ratios below 60 percent.[1, 2]

Because of the concerns of many stakeholders over the finances of public pension plans, the Society of Actuaries (SOA) Social Insurance and Public Finance Section (SI&PF) commissioned a research project in July 2012 titled, "Communicating the Financial Health of Public Pension Plans," hereafter referred to as the Project. The Project's premise was that the financial health of public pension plans was not being clearly communicated to key stakeholders. The Project's researcher was Sandy Mackenzie, the author of this article.

A great deal of information is available on public pension plans, but that information typically is not presented in a user-friendly way. Summary documents vary in quality and often do not give a clear and comprehensive picture of a plan's financial operations or basic structure. A noticeable improvement in communication could increase the chances of a successful resolution of the financial problems of underfunded plans and reduce the

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chances of a relapse.

The premise of the Project's report—available on the SOA's website at *http://www.soa.org/Files/Research/Projects/2014-pension-research-report.pdf*—is that there is a need for concise summary reviews of the financial health and prospects of state and municipal plans. These summary reviews would give stakeholders an overview that would allow them to arrive at informed opinions on the desirability of changes to the structure and the parameters (e.g., the accrual rate or rates and the contribution rate) of these plans. To illustrate how that might be done, the Project's mandate included the preparation of two sample reviews of two different state systems. This article describes and compares these reviews and the dashboards that accompany them. The reviews and dashboards are integral parts of the Project's report. The discussion of the reviews and dashboards is followed by a concluding section that addresses the Project's broader goals. The article is intended to give the flavor of the two reviews and dashboards and is not a substitute for reading and evaluating them directly. It is drawn largely from the report's introduction.[3]

THE PLAN REVIEWS

Each of the sample reviews covers a single state pension system. To conceal their identities, the pension systems have been renamed the Adams Public Employee Retirement System (PERS) and the Jackson PERS. Each review has an accompanying dashboard that presents key quantitative indicators and a summary of the structure of benefits and actuarial assumptions. The two state systems were chosen to illustrate how developments in plans in different financial circumstances can be treated in a summary review. The Adams PERS reported a funding ratio of 63 percent at end-2012, which was the last year for which comprehensive information on the plan was available. The Jackson PERS reported a funding ratio of 86 percent for the year ending in June 2012.

The sample reviews were prepared to give plan management, plan sponsors and other interested parties a model of how the state of a plan's finances and its benefits and financing sources can be summarily described and analyzed. The main goal of the Project is for the sample reviews to inspire the managers of public plans to prepare their own reviews. The sample reviews are intended to serve as examples to those plan managers who would be called upon to write a review of their own plan.

The Project's researcher was by definition an outsider. As a result, the sample reviews the researcher prepared are limited in some respects. An outsider cannot commission simulations on the impact of changes in actuarial or economic assumptions, for example, even though these simulations may have been reported in the plan's Comprehensive Annual Financial Report (CAFR), actuarial studies or other documents. Without a simulation model of a plan, it is very difficult to gauge the impact of measures taken to improve the plan's finances. Nonetheless, the two reviews can still serve as an expository model for plan "insiders." When important information was not available, the researcher sometimes included analyses of financial developments based on his conjectures in order to give the review a more analytical treatment of the issues. These conjectures were intended to stand in for what would be more solidly based analyses by drafters from plan management.

SIMILARITIES AND DIFFERENCES BETWEEN THE REVIEWS

The two sample reviews were deliberately organized in a similar way, although they were not written using a template. The fact that they are narratives illustrated by tables and charts rather than simply a compilation of data might lead readers to overlook the substantial similarities in form between them. The organization by section of each review is almost identical, and each one begins with an introduction, which is followed by sections on benefit determination, contributions, investments, and funding. Each has a short conclusion. Both reviews emphasize

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the subjects of benefits and plan financing, offer explanations for recent financing trends, and generally avoid going into detail. The tables and boxes that illustrate the reviews' observations are also substantially similar. Finally, the two reviews are more or less equal in length at six to seven pages.

There are differences between the coverage and emphasis of the two sample reviews as well. Both plans made changes to their cost-of-living adjustments (COLAs), which the reviews describe. However, the treatments in the reviews of these changes differ because in the Jackson PERS current retirees were completely unaffected by the changes, which was not the case with the Adams PERS, where the annual adjustment to the pensions of current retirees was reduced. In addition, the recent changes to the COLA in the Adams PERS require a fuller explanation because of the way they differ in their respective impact on differing age groups.

The reviews' descriptions and analyses of the financial position of the two plans also differ. The analysis of developments in the funding ratio is more detailed in the case of the Adams PERS than in the case of the Jackson PERS, in part because, given the substantial decline in the ratio of the Adams PERS over the previous 12 years, the subject really deserves more attention, and in part because there is more information available for the Adams PERS than for the Jackson PERS. In particular, the review of the Adams PERS includes a brief discussion of a simulation analysis of the impact of changes to the discount rate on the funding ratio. That discussion is lacking in the review of the Jackson PERS because of the unavailability of necessary data.

The review of the Adams PERS notes that the reported funding ratio exceeded 100 percent in the early 2000s, and attributes its subsequent large decline to a combination of factors: large investment losses as a result of declining stock prices, the decision to reduce the discount rate by ½ percentage point in two steps,[4] shortfalls in employer contributions—not a major problem in the case of the Jackson PERS—and other influences. It illustrates its discussion with a table, reproduced below, with information drawn from a number of CAFRs, that provides a statistical analysis for the very large increase in the Unfunded Actuarial Accrued Liability (UAAL). That analysis illustrates the major role of a shortfall in income from investments over the past 12 years. If a table like the table on Page 7 was featured in all reviews, comparisons of one review with others would be more informative.

Table: Adams PERS: Analysis of Changes in UAAL, 2000–2012

	2000-2004	2005-2007	2008-2012	2000-2012
Changes in UAAL	(13,612)	(229)	(9,668)	(23,509)
Age and service retirements	(1,931)	(150)	(117)	(2,198)
Investment income	(6,812)	1,605	(10,474)	(15,681)
Purchase of noncovered service	(1,457)	(73)	–	(1,530)
Actuarial assumption changes	(1,554)	1534	(4,164)	(4,183)
Contribution deficiency	(720)	(1,419)	(1,442)	(3,580)
Expected change in UAAL	114	(1,221)	(2,862)	(3,970)
Effect of changes in plan provisions	–	–	9,005	9,005
Other influences	(1,252)	(506)	388	(1,370)

Source (in millions): CAFRs for 2004, 2007, and 2012.

The reviews emphasize the measures that each plan has taken in recent years to improve its financial position.

The Project report also suggests that a specific structural factor might have contributed to the current low funding ratio: the pensions paid by the Adams PERS start earlier and pay more for the same work history than those of the Jackson PERS. For example, an Adams PERS plan member with 30 years of service is entitled to a pension of 75 percent of final salary that starts at age 50. A member of the Jackson PERS regular class (which contains most Jackson PERS members) retiring at age 63 with 30 years of service would have a replacement ratio of 49 percent. However, the brief introduction of the Adams review points out that most Adams PERS members are not covered by Social Security, making a comparison of the benefit structure of the two plans difficult. In any event, the structure of benefits in the Adams PERS has not changed by enough to explain a large part of the decline in the plan's funding ratio.

The reviews emphasize the measures that each plan has taken in recent years to improve its financial position. This was particularly important in the case of the Adams PERS given its low funding ratio. There appears to have been less urgency in the case of the Jackson PERS, and the measures taken in 2011 were designed to take effect gradually. The change to the COLA of the Jackson PERS has little effect on members nearing retirement, but the adjustment for inflation declines with the number of years of service a member is from retirement and falls to zero for new members. The reform package spares retirees and older workers, which was not the case with the changes made to the COLA of the Adams PERS.

Both reviews also try to shed light on the behavior of the funding ratio by analyzing the behavior of plan assets and liabilities. The Adams PERS review notes that plan liabilities grew by 6.0 percent per year between 2002 and 2012. Their growth was boosted by the strong growth in the number of retirees and in the average monthly pension. The latter development partly reflects the generous COLAs that were in place through 2005. The growth in assets over this period was only 2.5 percent per year at an annual rate. A similar analysis of the behavior of assets and liabilities is found in the Jackson PERS review.

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It is also hoped that the information in the reviews and the dashboards (even if incomplete) would be sufficient to enable an overall picture of the general health of a public pension plan to emerge.

Had these sample reviews been prepared by plan management, they could have been part of the actuarial control cycle and might also have included projections of future performance and additional analysis of the reasons for any deviation in actual unfunded liabilities from their actuarial projections. Particularly useful would be a quantitative analysis of the impact of changes to the plan that both plans have recently implemented.

THE DASHBOARDS

In contrast with the narrative reviews, the dashboard asks for the same information from each plan. Most of the requested information is quantitative and is requested for both recent and past dates. The dashboard asks for qualitative information on benefits and actuarial assumptions and methods, since a purely quantitative description in these areas is not feasible.

The dashboards are composed of 11 panels: demographic indicators, investment policy, investment returns, funding indicators and ratios, plan maturity indicators, plan sensitivity indicators, sponsor indicators, and related indicators, in addition to the panels for actuarial methods and assumptions and benefits. Almost all of the information they display came from various CAFRs, mostly those for plan years 1997, 2002, 2007, and 2012, since the dashboard was designed to present information at five-year intervals.

Plan management might choose to prepare a dashboard to complement a review of its plan, and could choose to supply either more or less information than the dashboard calls for. The dashboard's usefulness will not stand or fall on the absence of a few series. The indicators in each section have been chosen to provide a comprehensive picture of the plan's basic demographic and financial structure and financial position. Some of them are more important than others, and a plan's management might wish to provide alternative indicators. A detailed request for data like this one should ideally achieve a basic uni-

formity in the information that different plans will supply. The current version of the dashboard makes an ambitious data request, and it may well be that experience with it will result in a reduction in the amount of data requested, and perhaps some change in the relative importance of the different panels.

SIMILARITIES AND DIFFERENCES BETWEEN THE DASHBOARD DATA

By comparing the two sets of panels, it is clear that it was easier to find information for some panels than for others. Information on demographic indicators, plan maturity indicators, and the qualitative indicators on actuarial practices and benefits was relatively easy to come by. Information on funding was less easy to find, apart from such standard indicators as Actuarial Accrued Liability (AAL) and Actuarial Valuation of Assets (AVA), and the funding ratio derived therefrom. Of course, that published sources were not enough to fill in every cell in the dashboards' tables is not a sign that plan management could not compile the missing information.

Each of the dashboards has gaps in data that are not found in the other. Because there is no publicly available CAFR for the Adams PERS for 1997, most of the time series data lack the observation for 1997. However, the results of a "what-if" scenario, specifically, the impact on UAAL of a change to the discount rate of 1½ percentage points was available for the Adams PERS but not for the Jackson PERS.

CONCLUDING OBSERVATIONS

It bears repeating that the sample reviews of the pension systems of state and local government employees of Adams and Jackson are not meant to be templates carved in granite. Despite the similar organization of the two reviews, their design is not intended to force the experience of different public plans into a straitjacket. Plan management could choose to emphasize some issues more and others less, to write at greater length, or to be even more concise. Ideally, these reviews will be short enough to encourage interested stakeholders to read them. Another goal would be for them to have an organization sufficiently similar to facilitate comparisons. It is also hoped that the information in the reviews and the dashboards (even if incomplete) would be sufficient to enable an overall picture of the general health of a public pension plan to emerge.

Although the Project's basic goal was the preparation of summary reviews that could serve as examples to plan managements seriously considering preparing similar reviews of their own plans, the two sample plans this article has discussed are, in a sense, a work in progress. They are intended to stimulate a dialogue that will make them more useful to both plan management and the broader community of stakeholders in public pension plans.

It could be that the review and dashboards that plan managements would like to prepare would be quite different from these prototypes. However, in the eyes of the author/researcher and the Project oversight group recruited to oversee this research effort, the Project will have been worthwhile to the extent that it leads to a better and broader understanding of the finances of public pension plans. The exact shape of a summary review of a pension system does not matter as much as its effectiveness in communicating the actual state of the plan's finances.

ENDNOTES

1. The Public Fund Survey (PFS) collected information as of mid- to end-2013 on 126 state and local plans, whose assets represent 85 percent of the total assets of these plans. Of the 126 plans, 28 had funding ratios below 60 percent. The website of the PFS is at *publicfundsurvey.org*.
2. State plans typically assume a discount rate that reflects the expected return on their assets. Financial economists choose a discount rate that reflects the risk attached to a plan's liabilities, which would be much lower. Novy-Marx and Rauh estimate that the total liabilities of state plans at the end of 2008 were $5.2 trillion, compared with the liability derived from plan estimates of $3 trillion. See "The Liabilities and Risks of State-Sponsored Pension Plans" in the *Journal of Economic Perspectives*, Volume 23, Number 4 Fall 2009.
3. The reviews and dashboards are not intended to be actuarial reports prepared by actuaries, but reports that plan management could prepare for various stakeholders. The reports and dashboards were not designed to comply with actuarial standards.
4. By way of comparison, Treasury 10-year bond rates declined from 6.66 percent at the beginning of 2000 to 1.97 percent at the beginning of 2012.

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