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By Jeremy Gold

Last Summer I was invited to be the luncheon speaker at the MIT Center for Finance and Policy Second Annual Conference: Financial Products and Policies for an Aging Population [1]. My subject was the public pension crisis, and I chose to focus on the role of the actuarial profession.

"I am here to tell you a story about how a profession failed to fulfill its duty to the public and thus enabled and abetted the current very real crisis in public pension plans" were my opening words. I am not asserting that public pension actuaries caused the crisis, but I am asking, "Where are the screaming actuaries yelling 'fire' in these burning theaters?"

Why aren't public plan actuaries warning the public about the dire funding status of too many state and local pension plans? I do not accuse individual practicing actuaries of any dereliction of duty in this regard. Rather I point to duties that members of a profession have to their clients ("Principals," per our Code of Professional Conduct – the "Code") and that the profession itself has to the public. In general, the boards of trustees of public pension plans do not want "screaming actuaries yelling 'fire.'" Nor do they want actuarial calculations and reports to call for high contributions. In order to fulfill its duty to the public, the actuarial profession, rather than individual actuaries, must set limits on just how accommodating practicing actuaries can be to the Principals, especially when there can be negative implications for a larger public.

Public Pension Crisis

Although unimaginable a few years ago, we have now seen cities in bankruptcy and states in dire straits. Detroit's bankruptcy in 2013 was certainly noted by news media and informed Americans, most of whom realized that public pension plans had something to do with Detroit's financial difficulties; so too when California cities Stockton and San Bernardino went bankrupt in 2012.

Illinois, New Jersey, Kentucky and Connecticut have pension funding problems that have repeatedly been in the news. Although there is some awareness that things are not going well, along with some efforts by legislatures and executives to reform pension benefits and funding, there does not appear to be a public sense of crisis or impending doom.

States like South Dakota, North Carolina and a few others are seen as pension-healthy, with reported funding ratios at or close to 100%. Economists who've looked at these reports have re-estimated the ratios at 70% or lower. We are now in the seventh year of a bull market. If funding ratios are supposed to average 100% over market cycles, shouldn't they be well above 100% today?

Some of the most troubled localities (e.g., Chicago and the four states named above) have reported funding ratios below 50% and have economic funding ratios below 30%. Can future taxpayers bear these burdens? Will a market miracle (e.g., a doubling of default-free rates and the S&P 500 Index) provide a *deus ex machina*? More likely we will see a combination of cutbacks in public services, increased taxes, and benefit reductions. We may not be able properly to educate Johnny, born in 2015, because we still haven't fully paid for the benefits being paid to Mr. Smith, a teacher, who retired in 1992.

Although the public is only beginning to sense that the public pension funding crisis is real and potentially spread widely across the nation, actuaries, pension and not pension, should be very aware that the worst is yet to come. But pension actuarial methods and assumptions continue to kick the can down the road while life, health and property casualty actuaries appear unconcerned. The entire profession shares the name "actuary" as well as the public respect that it has earned over decades. Thus the entire profession must also share the risk that the brand could be critically tarnished if public pensions continue to stress the finances of our cities and states.

I identify two ways in which the actuarial profession contributes to the crisis: a science problem and a professionalism problem. Although the science problem – mismeasurement of pension liabilities and costs -- is critical, it has been addressed often and thus most of this article is concerned with the latter problem. Our actuarial institutions are not designed to accommodate new ideas that threaten the contentedness and complacency of our clients. I look at the professionalism problem in terms of duties we have: to educate ourselves, to serve our clients with integrity and skill, to serve the public when our actions have impact. I am most critical of how our Actuarial Standards of Practice (ASOPs) are developed and maintained.

The Science Problem – Mismeasurement

In 2008, the Vice-Chair of the U.S. Federal Reserve, speaking to public pension plan executives, said:[2]

> Among economists "there is no professional disagreement: The only appropriate way to calculate the present value of a very-low-risk liability is to use a very-low-risk discount rate."

The audience at MIT included many economists, all of whom agree that liability discounting should be based on the riskiness of the *liabilities*, not on the riskiness of the *assets.* For more than a decade I, and others, have pointed to weaknesses in the pension actuarial model, especially to the anticipation of expected returns on risky assets in the determination of plan liabilities and contributions.[3] Over that same period the average discount rate for public pension plans has been very close to 8%, even as returns on non-risky assets have declined from about 8% in 1990 to 6% circa 2000 to less than 3% today.

The rate of discount for the purpose of determining plan liabilities and contributions is frequently set by boards of trustees or legislative bodies. Those with the authority to set discount rates often solicit actuarial input but, almost equally often, they lean on actuaries to make recommendations that the decision-makers want to hear and, in some instances, the decision makers feel free to ignore actuarial recommendations. Since most of the actuaries performing valuations for public plans are outside consultants operating in a competitive environment, they cannot be expected to push vigorously for much lower discount rates and higher annual contributions. Actuaries entirely compliant with our Code and ASOPs need only satisfy themselves that discount rates are reasonable estimates of expected returns.

A fundamental principle of public finance, *intergenerational equity,* has been stated by Alicia Munnell:[4]

> "... each generation of taxpayers should pay the full cost of the public services it elects to receive."

The continued use of discount rates in excess of 7% in a 3% environment defers current costs onto future generations of taxpayers. A payment of $1000 due in twenty years is valued at $554 when discounted at 3% but only $258 when discounted at 7%. When today's taxpayers contribute only $258, more than half of the cost is passed on to future taxpayers.

The Professionalism Problem – What is a Profession?

One definition is simply a synonym for an occupation. "What is your profession?" "I'm a short-order cook in a diner." And while the short-order cook may well take pride in his work, when we talk about the *actuarial profession*, we have something else in mind more akin to what we think of when we talk about the medical, legal, and accounting professions.

For the MIT audience I identified five key attributes of a profession that are often referenced when talking about professions such as ours. These include: a body of knowledge, a system of education, a community, a duty to one's employer and/or clients, and a duty to the public. I think most actuaries will agree that these attributes are pretty much what we have in mind when we call ourselves a profession.

Body of Knowledge

There can be little doubt that our profession includes a large body of knowledge that is derived from probability and statistics, economics and finance, demography, medicine and engineering. Some of these appear to a greater or lesser degree in our subspecialties of life, health, property casualty, risk management, financial reporting and pensions. One of our professional duties is to grow this body of knowledge, which we do through research. Because we borrow so much from the disciplines I just cited, we need to keep abreast of changes taking place therein.

Education

Basic education makes actuaries. Continuing education makes actuaries better. That's how it should work and that is how it often does. By integrating more closely with academia, we have improved the preliminary syllabus which is where we also find most of our interdisciplinary borrowing. I cannot comment on the later examinations and continuing education except in the area of pensions.

I would like the pension syllabus to prepare students for a forty-year actuarial career with content rich in enduring principles of retirement economics. For reasons not always in our control, the U.S. advanced pension syllabus is beholden to the regulators (e.g. The Joint Board for the Enrollment of Actuaries) and to the practical demands of pension consulting firms. Consulting firms want our basic education system to deliver pension actuaries capable of performing valuations, experience studies, cost studies, and filing governmental forms, what might be called "nuts and bolts" productivity. Although these skills might be taught on-the-job, some consulting firms don't want to lose productivity. Their expectations plus the demands of the Joint Board clutter an already tight syllabus.

Our education of new actuaries is overseen by committees of practicing actuaries who were taught by their predecessors and in turn teach their successors. This governance can lead to the best and worst of existing practice being passed across generations of actuaries. In partial mitigation of this, the committee overseeing the advanced pension syllabus has invited review by interested parties including academic economists. Nonetheless, the syllabus remains crowded with uneven and disjoint material, falling short of what I think should form the foundation of long careers based on enduring principles.

When things are happening in our "borrowed" areas of knowledge, real continuing education should be able to find its way into our programs and – this is the especially difficult part — it should have a real impact on the knowledge and practice of working actuaries. MIT is, of course, in the education business. I shared three quotes with them dealing with the difficulties in all educational efforts to replace stale knowledge with new ideas:

- "The difficulty lies, not in the new ideas, but in escaping the old ones …" – John Maynard Keynes
- "It is difficult to get a man to understand something when his pay depends upon not understanding it." – Upton Sinclair
- "Science advances one funeral at a time." – Max Planck

What does this imply? That dynamic career-long learning might require greater effort than our profession is presently exerting – on the part of both our learners and our teachers. I don't pretend that I know how to do this really well but I am afraid that it is too easy to recognize that it is not being done well enough.

Community

Community is the fun part of being a profession. It is why most of us have many friends who are actuarial colleagues and why we enjoy going to actuarial meetings. Community is best reflected in face-to-face meetings with colleagues and, to a lesser degree, when we join interactive webcasts and bulletin boards, e.g., the Actuarial Outpost, as well as when we connect with and follow each other on LinkedIn and Twitter.

Community is an area where I think more positively than negatively about how we perform and support each other as a profession. Yet even here I have some concerns about how our leadership can look too much like an "old boys' network" and how group think can arise in this context. We sometimes huddle too closely amongst ourselves and interact too little and not intensely enough with economists, accountants and other financial professionals. Too often we merely recirculate actuarial interpretations of these disciplines without review and refreshment.

Duty to Clients

I believe that pension actuaries, often performing in a competitive consulting environment, are very good at serving their *current* clients. Unfortunately, in the public pension area, this has meant meeting client desires to keep liabilities and costs down despite declines in market interest rates over the past thirty years and continuing declines in mortality rates. Understated liabilities and costs favor current constituents (boards of trustees, elected officials, labor representatives) over future constituents and the general public. In addition to deferring contributions, actuarial underestimates have, until quite recently, led to public employee benefit increases well in excess of the wage concessions made in exchange.

Duty to the Public

The U.S. actuarial profession aspires to fulfill its responsibility to the public:

> “The American Academy of Actuaries’ mission is to serve the public and the U.S. actuarial profession.”
>
> The Code “require[s] actuaries to adhere to the high standards of conduct, practice, and qualifications of the profession, thereby supporting the actuarial profession in fulfilling its responsibility to the public.”

Why didn’t Detroit’s actuaries warn the public that the city’s pension plans were desperately underfunded? The simple answer: they didn’t have to. It is not reasonable to expect individual actuaries, operating in a competitive environment, to insist that their clients accept greater liabilities and higher costs because this is "in the public interest." The actuaries who have served their public pension plan clients have, almost universally, followed the Code and all applicable ASOPs.

The public must be better served. This duty falls upon actuarial leaders and standard setters.

The Professionalism Problem – Actuarial Standards of Practice

Today the public interest requires stronger disclosures and funding recommendations than those minimally required by today's ASOPs. How can we know this? The proof is starkly visible. The best funded state pension plans are 100% funded after a 7-year bull market using actuarial methods that grossly understate the economic value of pension promises and defer costs far into the future.

According to the Code, we must behave ethically, meet U.S. Qualification Standards (including continuing professional development), and follow the ASOPs. Where in this mix are we required to discover that pension actuaries are mismeasuring public plan liabilities and costs?

How do new findings in our feeder disciplines find their way into our practice and into our ASOPs? How do ASOPs learn? In general, our standards of practice are not derived from theory, nor even from fundamental actuarial principles, but rather come from changes in practice. A science-based profession cannot survive this way.

Learning from the Accounting Profession

The lay public expects professions to promulgate and enforce standards of practice. The most prominent such standards in the financial world are those of the Financial Accounting Standards Board (FASB). Seemingly comparable actuarial standards are promulgated by the Actuarial Standards Board (ASB); it is unlikely that the public is aware of how different these two sets of standards are in philosophy and detail.

FASB delivers top down ***best practice*** standards developed by full-time board members supported by a dedicated staff. Financial Accounting Standards are **detailed prescriptions based on articulated principles.** ASB standards are developed by part-time volunteer board members supported by volunteer committees, and driven by practice from the bottom up. They are brief, defer frequently to professional judgment, and assert that they define ***appropriate practice*** rather than best practice.

In the early 1970's, the accounting profession recognized that it had the relationship between principles and practice backwards:[5]

> "APB [Accounting Principles Board] Statement No. 4 'Basic Concepts and Accounting Principles for Business Enterprises,' issued in 1970, approached the problem backward by attempting to rationalize from existing practice to the concepts and principles, rather than formulating objectives upon which standards for practice could be based; it amounted to nothing more than a codification of existing practices.
>
> "It was for this reason … that the AICPA [American Institute of Certified Public Accountants] created two 'blue ribbon' bodies composed of both accountants and others in 1971[6] … which led to the creation of the FASB."

The FASB has promulgated eight Concepts Statements, six of them issued by 1985, which are regularly reviewed and amended. These statements embody the principles of financial reporting recognized by FASB and are used to drive its standards of practice.

U.S. Actuarial Standards of Practice are written by the ASB. ASOP 1 describes how the ASB goes about its work. Section 3.1.4:[7]

> "The ASOPs are principles-based and do not attempt to dictate every step and decision in an actuarial assignment. Generally, ASOPs are not narrowly prescriptive and neither dictate a single approach nor mandate a particular outcome. Rather, ASOPs provide the actuary with an analytical framework for exercising professional judgment, and identify factors that the actuary typically should consider when rendering a particular type of actuarial service. The ASOPs allow for the actuary to use professional judgment when selecting methods and assumptions,

> conducting an analysis, and reaching a conclusion, and recognize that actuaries can reasonably reach different conclusions when faced with the same facts."

In July 2014, the ASB issued "ASOPs and Public Pension Plan Funding and Accounting – Request for Comments." [8] Question 4 asked: "In general, the ASOPs are principles based and not rules based. As a result, the ASOPs are generally not highly prescriptive. Should the ASOPs related to public plan actuarial valuations be more prescriptive?"

In November 2014, Robert Stein, Chair of the SOA's Blue Ribbon Panel (BRP), submitted comments on behalf of select members of the BRP. In response to Question 4: [9]

> "We understand that a complex and changing environment is best addressed with principles based guidance. However, we note that the current guidance does not articulate any principles and does not frame the method and assumption decisions within the context of maintaining consistency with such principles. Hence, above all we call for principles to be established."

My own response to the same Question 4 included: [10]

> "The ASB has repeatedly contrasted principles based versus prescriptive, almost as though they were antonyms, as though they were opposite ends of a range into which ASOPs must fall. Further, the ASB has clearly favored principles over prescriptions. Today, the ASB asks whether the circumstances surrounding pension standards might require some movement toward prescription and, presumably, away from principle.
>
> "But the terms are not antonyms. Standards can be written that are principles based and prescriptive or practice based and not prescriptive. The FASB has always been principles based and has always written standards that are much more prescriptive than those that the ASB has written for pensions."

When contrasted with the FASB approach, the assertion by the ASB that ASOPs are "principles-based" rings hollow. Where are the principles?

ASOPs versus Science

Actuaries have long thought of themselves as members of a science-based profession. We are all familiar with the motto of the Society of Actuaries:

> "The work of science is to substitute facts for appearances and demonstrations for impressions."

With the ASOPs driven by practice, advances in actuarial science must enter practice before they can become standards. When the advantages of a scientific advance benefit our principals, it is not hard to understand how changes will flow into practice and then into ASOPs. But when the advanced science makes principals unhappy (e.g., greater pension contributions, higher insurance reserves), changes to practice and ASOPs are unlikely.

In 2004, the ASB updated the Introduction to ASOPs which described its process for setting standards. Eighteen (later 24) actuaries, including me, signed a letter[11] to the ASB criticizing a standard setting process that was grounded in practice rather than in scientific principles. We concluded:

> "The signers believe that the ASB and its practice committees are the proper location for the exercise of professional analysis and judgment. Even if our profession lacks the resources to fund a full-time leadership institution à la FASB, our volunteers must be committed to independent decision-making informed by in-depth study of the actuarial science issues at hand. They must advance our science in front of our practice. Following, rather than leading, the practice is a prescription for stagnation and an invitation for outsiders to impose their rules upon us. We must lead or we will be led."

In 2005, at the Actuarial Society of New York I presented "Setting Standards for Setting Standards[12]" which reviewed the history of actuarial standards, appealed to our professional desire to self-regulate, and concluded again: "We must lead or we will be led."

How Well Have the Pension ASOPs Served the Public?

The pension actuarial model is broken. Excessive discounting and deferral of costs have often led to unaffordable promises made by past and current taxpayers to public employees, the cost of which will be borne by taxpayers and pensioners in the future. The degree to which this overhang exists has been downplayed by vested interests, including, too often, actuaries who, arguably, should know better.

From 2002 until now, I have tried to influence the profession's educational activities (as an SOA volunteer), its policy posture (as an AAA volunteer) and its standard setting (via frequent comments to the ASB). With my MIT speech, I acknowledged to myself that my efforts inside the profession have moved it only slightly while the threats posed by the U.S. public pension system are now moving much faster than our actuarial leadership is responding.

The public needs to be served. Instead of serving, our ASOPs are doing more to enable and abet the weaknesses in the political systems that run pension plans for public employees. We actuaries should have been the cops here, applying science while all those around us were doing politics. But competitive forces, weak standards, and poor training have made us part of the problem.

I am disappointed in myself and my profession. We have demanded too little from our practitioners and have been too willing to let weak pension ASOPs threaten the brand we all share.

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1 https://www.youtube.com/watch?v=D-olXJUXe90&feature=youtu.be

2 Kohn, Donald L. 2008. *Remarks at the National Conference on Public Employee Retirement Systems Annual Conference*, New Orleans, LA. May 20. https://fraser.stlouisfed.org/docs/historical/kohn/kohn_20080520.pdf

3 Bader, Lawrence N. and Jeremy Gold. 2003. *Reinventing Pension Actuarial Science.* The Pension Forum, Society of Actuaries.

4 Munnell, Alicia H. 2012. *State and Local Pensions What Now?* Brookings Institution Press. Chapter 3, 1st sentence.

[5] Hall, William D. and David L. Landsittel. 1977. *A New Look at Accounting for Pension Costs*. The Pension Research Council, published by Richard D. Irwin Inc. Chapter 3, Paragraph 4.

[6] In 2013, the SOA commissioned the Blue Ribbon Panel on Public Pension Plan Funding. Its report is available here: https://www.soa.org/blueribbonpanel

[7] http://www.actuarialstandardsboard.org/asops/introductoryactuarialstandardpractice/

[8] http://www.actuarialstandardsboard.org/asops/asops-and-public-pension-plan-funding-and-accounting-request-for-comments/

[9] http://www.actuarialstandardsboard.org/wp-content/uploads/2015/03/Comment-53.pdf

[10] http://www.actuarialstandardsboard.org/wp-content/uploads/2015/03/Comment-41.pdf

[11] http://users.erols.com/jeremygold/asopintrocommentsanon.pdf

[12] http://www.pensionfinance.org/papers/public.pdf