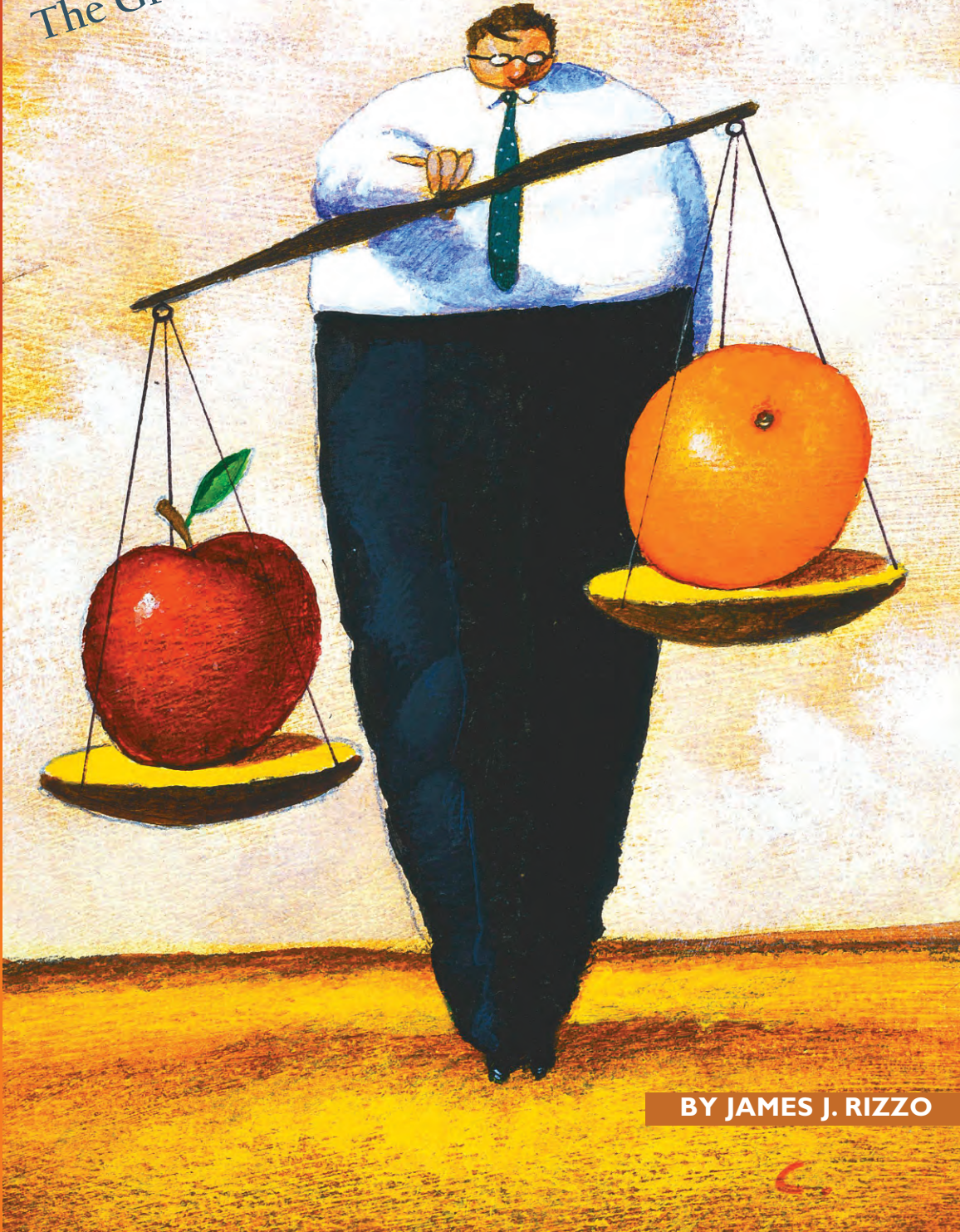


**Future Cost Versus Market Value**  
**The Great Debate over Pension Valuation**



**BY JAMES J. RIZZO**

For several years, the actuarial community has debated the proper way to calculate the value of pension obligations. This had been settled in the actuarial profession's worldview many years ago. However, over the last decade or two, a branch of academics and research called financial economics has influenced corporate finance, including the effects pension plans have on corporate financial reporting and stock values. More recently, advocates of financial economics have turned their attention to conforming public pensions to their worldview.

Proponents of these two worldviews disagree on the way pension liabilities should be measured and accounted for. Under conventional practice, public-sector retirement plans have calculated their liabilities and the contributions that will be required to fund those liabilities based on what the plan's assets are expected to earn over a fairly long timeframe (more than 50 years). This view focuses on the current and long-term expected cost to taxpayers for funding the plan. According to financial economics, a pension liability should be valued at the current market or settlement value, as if it were a marketable instrument or as if the liability were settled with an insurance company in a plan termination. The conventional approach to accounting and funding is based on a *long-term funding* view of the pension obligation, while the financial economics approach is based on a *snapshot benefit* accrual view.

Focusing on the cost of *funding* the plan is different from focusing on the *value of the benefits* in the financial markets; in fact, the two worldviews are polar opposites in several ways. Government finance officers need to make sense of these broad perspectives, which means looking at what is right and wrong with the current approach, and whether the financial economics approach might lead to any unintended consequences.

## ONGOING DISCUSSION

Until now, this discussion has resembled a family feud: Actuaries arguing among themselves over actuarial methods, using actuarial and economics terminology about esoteric pension finance matters — not unlike debates among medieval theologians over how many angels could dance on the head of a pin.

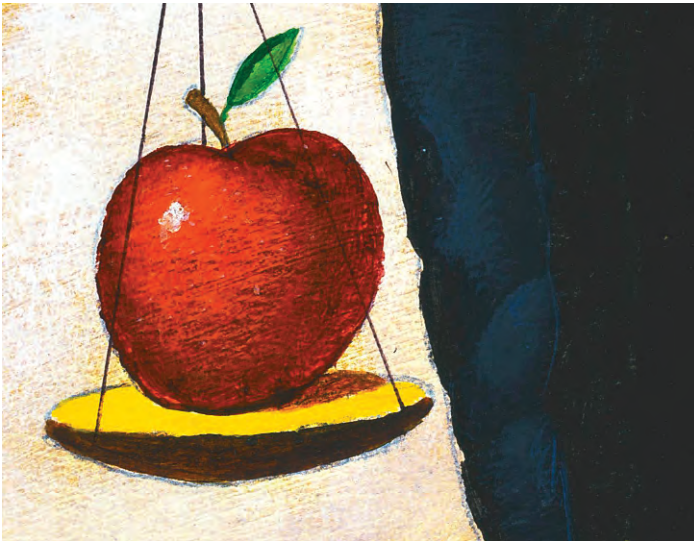
In the past year or so, however, the debate has boiled over, spilling into the mainstream. It is no longer brewing just within actuarial circles, no longer limited to corporate finance evaluations by Wall Street's stock and bond analysts, and no longer confined to the halls of academia or scholarly papers.

The debate between the two worldviews — those who think conventional methods capture the essence of the obligation and those who think financial economics will improve public-sector pension accounting — now touches almost every state and local government and its respective pension and other postemployment benefit (OPEB) plans.

Certain large public-sector retirement systems have now weighed in. Large and influential public-sector trade associations have staked out their positions. Media outlets have splashed attention-getting headlines and articles on the topic. And in April

2008, after a lengthy research period, the Governmental Accounting Standards Board (GASB) embarked on a major project to reexamine accounting and financial reporting for postemployment benefits (including GASB Statement No. 25, *Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans*; GASB Statement No. 27, *Accounting for Pensions by State and Local Governmental Employers*; GASB Statement No. 43, *Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans*; GASB Statement No. 45, *Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions*; and GASB Statement No. 50,

The debate between the two worldviews — those who think conventional methods capture the essence of the obligation and those who think financial economics will improve public-sector pension accounting — now touches almost every state and local government and its respective pension and other postemployment benefit (OPEB) plans.



*Pension Disclosures — an Amendment of GASB Statements No. 25 and No. 27*). Recently, the GASB issued an invitation to comment on this topic, soliciting input from preparers and users of financial statements before the agency issues a preliminary views document or an exposure draft. The invitation to comment presents background commentary and explanations of the two competing viewpoints, along with other related issues.<sup>1</sup>

Actually, this debate is not new to governmental accounting. During the years leading up to the issuance of GASB Statement No. 25 and Statement No. 27 in November of 1994, the GASB wrestled with this matter in great detail, as did many other organizations. Now, a number of factors have converged to bring the debate to the front burner.

The positions being staked out by interested parties fall within a spectrum. One side seeks to maintain the conventional approach, with or without certain changes, and the other seeks to adopt a more or less financial economics approach. The financial economics approach constitutes a tectonic shift in philosophy from the status quo. The following descriptions of these two positions are necessarily painted with a broad brush and are not intended to present all the details and variations of the respective worldviews, but rather a glance at their essential characteristics and differences.

There are two popular arguments for changing the current approach: There is no total unfunded liability figure in the statement of net assets, and there is a lack of comparability among government entities.

## THE CONVENTIONAL APPROACH

The current approach to financial reporting for public-sector pension and OPEB plans maintains a linkage between accounting and funding. Financial statement expense and disclosure numbers for pension and OPEB costs are derived from a *funding* view of the obligation, which is concerned with determining the cost to taxpayers for funding the plans.

Under all acceptable actuarial cost methods used to value public pension costs and liabilities, future benefit payment cash flows are discounted to a present value based on long-term expected investment returns of the pension fund. This is known as the interest rate assumption, or the discount rate. The median discount rate, nationally, is 8 percent. Discounting at the expected long-term investment return of the plan is intended to reflect likely future investment earnings.<sup>2</sup> Discounting for expected earnings results in the net balance expected to be paid by taxpayers over time. Most actuarial cost methods used in conventional public-sector accounting are designed to produce level contributions as a percentage of pay.

Employers usually fund their pension liabilities by paying an annual required contribution (ARC), which actuaries use to determine the annual pension cost or expense charged on the government-wide financial statement. Generally speaking, the ARC is the current year's cost plus an amortization payment. Essentially, pension expense is based on the payment due for the current year, as determined under the actuarial cost method chosen for *funding* the plan.<sup>3</sup> That is the linkage between accounting and funding.

The liability that appears on the statement of net assets is not the entire unfunded actuarial accrued liability (UAAL) —the overall liability, after subtracting out any money already set aside to prefund the benefits — but the cumulative expense charges from prior years that have not been satisfied by the contributions the employer made in prior years. What appears on the statement of net assets is the cumulative shortfall, called the net pension obligation. If the employer contributions made in prior years have been greater than the annual

pension cost of previous years, the excess is considered a net pension asset.

It can be useful to think of the mortgages many people have on their homes. The employer's net pension obligation (or asset) is like the cumulative amount of any delinquencies (or prepayments) in the payment schedule, as of the reporting date. Many people who purchased houses in the last few years have seen their market value fall below their outstanding mortgage; they owe more money on the house than it is worth. Their net liability is the excess of debt over the asset value. With a pension plan, the full amount of the employer's UAAL can be thought of as the amount of the outstanding balance of the mortgage beyond the value of the house. Unlike the net pension obligation, the UAAL is not currently presented as a liability on the statement of net assets. It is presented in the notes to the financial statements and required supplementary information. The UAAL currently disclosed in the notes is usually a much larger number than the net pension obligation, if any, recognized as a liability in the statement of net assets.

## THE FINANCIAL ECONOMICS APPROACH

The financial economics approach to accounting and funding advocates recognizing its version of the unfunded pension liability in the statement of net assets and advocates immediate recognition of all changes in it each year as an expense, without any amortization. The financial economics version of the pension liability is based on two elements. First, it does not take a *funding* view, but a *benefit* accrual view of the obligation by defining the pension liability as the present value of the expected future benefit payments, based on what members have accrued to date. Second, the discount rate used to calculate that present value is based on the risk-free yield curve observed in the marketplace at the reporting date.<sup>4</sup>

This market value of the liability (MVL) is at the heart of the financial economics approach to pension finance. According to this worldview, the only true and proper measure of the employer's net pension liability is the excess of the current market value of the benefits the employer has

promised to date (the MVL), over the current market value of assets (MVA) held by the pension fund. The financial economics view of this approach to expense and liability recognition breaks the linkage between accounting and funding.

Financial economics holds that its version of the net pension liability (MVL minus MVA) should be recognized as a liability on the statement of net assets, and the expense charged for the year should be the present value of the lifetime pension benefit employees have earned for that year's service. Proponents of this worldview insist that all other changes in the MVL should be expensed entirely in the year in which they occur, without amortization. Sources of such changes include retroactive benefit increases, annual asset gains or losses in the financial markets, annual liability gains or losses due to yield curve interest rate changes, and other actuarial gains or losses.

The MVL is considered a real liability that is owed by the government to its current and former employees, and therefore it should be presented as a liability on the employer's statement of net assets. The employer is seen owing a *benefit* liability, not a *funding* liability. This is one of the major differences between the financial economics approach and the conventional approach. Financial economics considers the benefit promise to plan members to be owed directly by the employer. The pension fund is treated as merely a pass-through, a financing arm the employer uses to meet the pension obligation. The pension fund, its investment policy, and its actuarial cost method are seen as irrelevant in all value calculations of the gross pension liability and expense.

The conventional approach spreads costs across generations of taxpayers, which promotes intergenerational equity. Keeping contribution rates level also helps public-sector employers with planning and budgeting.

Financial economists view the public-sector pension benefit payments as a guaranteed, bond-like promise and therefore believe the value of the benefits should be determined with reference to bond prices — by using current bond yields to discount the future benefit cash flows. Specifically, financial economics recommends using a risk-free rate (referring to the yield curve for long-term Treasury STRIPS or swaps) observed on the date of measurement, regardless of how the pension fund is invested or its long-term expected

returns. This present value is often described as the market value of the liability, although it is not truly a market or fair value.<sup>5</sup> This method is sometimes referred to as a settlement measure because it does not factor in future salary and therefore reflects the liability for accrued benefits as if the plan were to be settled or terminated on the reporting date.

Using risk-free discount rates (in the yield curve) observed as of the reporting date satisfies two important financial economics objectives.<sup>6</sup> First, the discount rate should reflect the same rate that can be achieved in the marketplace for bonds that have a similar probability of default. Public-sector pensions accrued to date are virtually guaranteed, so default-free benefit cash flows should be discounted using risk-free rates. Second, a fundamental principle in corporate finance and liability pricing is that a risk premium (the return that an investment is expected to yield, over and above the risk-free rate) should not be recognized until it is earned. Stocks and corporate bonds are expected to return more than Treasury STRIPS or swaps for a given investment period, in part because stocks and corporate bonds are riskier than Treasuries. Using a higher discount rate to reflect the long-term expected return of a balanced pension portfolio (as conventional public-sector pension accounting does) is recognizing the risk premium before it is actually earned, which is contrary to the principles of financial economics.

The natural extension of financial economics is that pension funds should invest 100 percent of their assets in bonds, particularly in Treasuries.<sup>7</sup> The portfolio should be designed so cash flows match the timing and amount of expected benefit payments as closely as possible, using instruments that have the same likelihood of default as the benefit cash flows. This way, if the yield curve goes down, causing the market value of the liabilities to go up, the market value of assets will go up similarly. This is known as asset-liability matching.

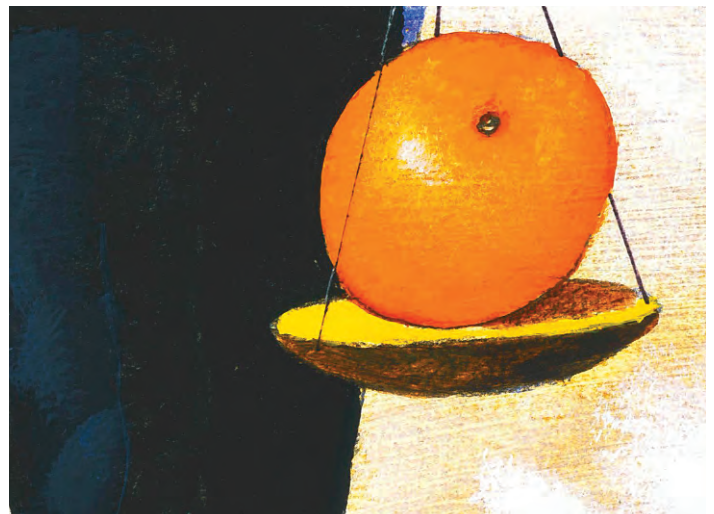
## THE PROS AND CONS

There are two popular arguments for changing the current approach: There is no total unfunded liability figure in the statement of net assets, and there is a lack of comparability among government entities. The current net pension obligation measures only the shortfall in annual contributions as a balance sheet liability — the late mortgage payments, as it were. There is no balance sheet liability representing the

entire unfunded outstanding debt. Furthermore, even though the unfunded actuarial accrued liability is disclosed in the notes and required supplementary information, some argue that the methods of calculating these figures are so different from one employer to the next that users of the financial statements cannot compare one entity to another. Advocates of financial economics believe the MVL approach would provide a standardized, consistent measure of pension liabilities.

On the other hand, as the GASB discussed in a 2006 white paper, public-sector employers do not have the same environment or goals as private-sector employers.<sup>8</sup> Governments provide public services that are financed through taxes, rather than creating wealth for shareholders, and governments seldom go bankrupt or dissolve the way private-sector businesses do. In fact, public-sector pension benefits are often protected by law. As a result, the GASB notes that accounting standards for public- and private-sector pension benefits should be different. The conventional approach spreads costs across generations of taxpayers in ways that promote intergenerational equity. Keeping contribution rates level also helps public-sector employers with planning and budgeting. Furthermore, in the public sector, the pension fund is far more independent from the employer than it is in the private sector. There is a stronger argument against pass-through in the public sector. In recognition of that independence, the employer really does not owe the *benefit* directly to the employee; the plan does. The employer owes a *funding* liability to the plan.

While the MVL makes an attempt at placing a market price or value on the benefit rights accumulated by plan members,



## Comparison of Approaches to Pension Finance

	Current Approach	Financial Economics Approach
<b>Financial Reporting (for Sole and Agent Employers)</b>		
Employer-Plan Relationship	The obligation for paying benefits is a liability of the plan rather than of the employer; while the obligation of the employer is for contributions to the plan.	The obligation for paying benefits is a liability of the employer; the plan is just a pass-through.
Focus of the Approach	Focus is on the taxpayer cost of funding or financing the obligation.	Focus is on the value or market price of the benefit liability accumulated.
Actuarial Methods for Recognition	Up to six actuarial cost methods are permitted.	Only one actuarial cost method is used — the accumulated benefit obligation, a benefit price.
Balance Sheet Liability on the Statement of Net Assets	Cumulative annual shortfall in employer contributions, compared with the annual pension cost — called the net pension obligation.	Market value of liability minus fair value of assets.
Discount Rate for Recognition	Each pension plan selects its own discount rate based on its own investment policy and expectations.	Risk-free yield curve, which is unrelated to the plan's investment policy, is observed on each reporting date.
Amortization	Level dollar or percentage of pay; up to 30 years; closed or open.	Immediate recognition of any changes in the present value of the accumulated benefit obligation (some advocates disagree, at least in part).
Notes/Required Supplementary Information	Schedules of funding progress, employer contributions, and other basic information.	Additional disclosures, including actuarially expected benefit cash flows, etc.
<b>Funding and Budgeting</b>		
Actuarial Methods	Fixed by the state Legislature or derived using any reasonable actuarial cost method.	Only one actuarial cost method — the market value of the liability (MVL).
Discount Rate	Each pension plan selects its own discount rate based on its own investment policy and expectations.	Risk-free yield curve, which is unrelated to the plan's investment policy, is observed on each reporting date.
Amortization	Fixed by the state Legislature or any variety of methods permitted under statutes and actuarial standards of practice.	Immediate recognition of any changes in the present value of the accumulated benefit obligation (some advocates disagree, at least in part).
<b>Fund Investment Policy</b>	Fixed by the state Legislature or flexible according to the needs and judgment of plan fiduciaries.	Predisposed toward investing in fixed-income securities in a way that matches the duration of the expected accumulated benefit obligation cash flow.
<b>Comparability (Funded Ratio)</b>	There is little comparability among plans because they use different actuarial cost methods and asset smoothing methods.	All plans would use the same present value of accumulated benefit obligation as the actuarial cost method and the same discount yield curve rates.

annual changes in the yield curve discount rates make the year-over-year pension liability volatile. The year-over-year market value of plan assets is also volatile. Therefore, putting a pension plan's unfunded MVL on the balance sheet would lead to unpredictable swings in the expenses and balance sheet liabilities in any given year. Also, using bond yields to discount pension cash flows ties a pension fund's liabilities to changes in the bond market that are not related to a plan's promised benefits. Small changes in the discount rate could lead to large changes in the plan's reported liabilities, even though the benefits themselves did not change.

Furthermore, many question the usefulness of a balance sheet liability that is roughly a settlement price for plans that are not being shut down. Some would advocate its usefulness as a note disclosure or as required supplementary information data, while others warn that including this kind of information would lead to serious unintended consequences — misperceptions about large liabilities on the statement of assets and large shortfalls between expense and funding, the potential for benefit improvements when funded ratios drop temporarily and for large contributions and plan terminations when funded ratios spike temporarily, and the potential for increasing plan contributions so much that these plans would not be sustainable.

## CONCLUSIONS

Financial economists think that replacing conventional actuarial methods with the MVL approach would make it easier for the public to understand the level of risk involved with public pension funds as well as providing a way to reduce those risks. Supporters of the current approach to financial reporting for public-sector pension and OPEB plans think the conventional method works well in furthering the aims of government, allowing employers to smooth their annual contributions and thus better balance their budgets while promoting intergenerational equity.

This family dialogue has now spread to the entire community of professionals involved in public-sector financial reporting and pension finance. All interested parties need to understand the issues and implications. The way the issues are resolved could affect financial reporting — as well as funding, investments, comparability, and other areas — for virtually every government employer. ■



## Notes

1. The GASB's invitation to comment, which is 63 pages long and divided into seven chapters, is available at [http://www.gasb.org/exp/itc\\_pension\\_accounting\\_and\\_financial\\_reporting.pdf](http://www.gasb.org/exp/itc_pension_accounting_and_financial_reporting.pdf). For a brief summary, see Paul Zorn, "The GASB's Invitation to Comment on Pension Accounting and Reporting Standards," *GRS Insight*, May 2009, at [http://www.gabrielroeder.com/news/pdf\\_insight/insight2009\\_05.pdf](http://www.gabrielroeder.com/news/pdf_insight/insight2009_05.pdf).
2. "Valuing Public Pension Plans: Comparing Financial Economics with Conventional Approaches," *GRS Insight*, April 2008, at [http://www.gabrielroeder.com/news/pdf\\_insight/insight2008\\_04.pdf](http://www.gabrielroeder.com/news/pdf_insight/insight2008_04.pdf).
3. The annual pension cost (APC) is the expense charged to the government-wide statement of activity. It is the annual required contribution (ARC) plus interest on the net pension obligation (the cumulative difference between the total APC charged as an expense over the years and the total employer contributions deposited over the years) and an adjustment to the ARC. The ARC is composed of the normal cost (the current year's allocated cost as determined under the plan's actuarial cost method) plus an amortization payment or payments sufficient to pay off the unfunded actuarial accrued liability (UAAL). The UAAL is the excess of the actuarial accrued liability as determined under the plan's actuarial cost method over the plan's actuarial value of assets. The plan selects an actuarial cost method (from several permitted under the GASB accounting standards) that allocates the total expected future plan costs to particular years.
4. David Wilcox, testimony before the Public Interest Committee Forum sponsored by the American Academy of Actuaries, September 4, 2008.
5. James Rizzo, Krzysztof Ostaszewski, Piotr Krekora, "Revisiting Pension Actuarial Science — A Five Part Series," presented in May 2009 at the Public Pension Finance Symposium, <http://www.soa.org/meetings-and-events/handouts/2009-chicago-public-pension-papers.aspx>.
6. Jeremy Gold and Gordon Latter, "The Case for Marking Public Pension Plan Liabilities to Market," a working paper available from the Pension Finance Institute at <http://www.pensionfinance.org/papers/TheCaseforMarkingPublicPensionPlanLiabilitiestoMarket.pdf>.
7. Lawrence N. Bader and Jeremy Gold, "The Case Against Stock in Public Pension Funds," The Pension Research Council, The Wharton School of the University of Pennsylvania.
8. "Why Governmental Accounting and Financial Reporting Is — and Should Be — Different," Governmental Accounting Standards Board, available at [http://www.gasb.org/white\\_paper\\_full.pdf](http://www.gasb.org/white_paper_full.pdf).

---

**JAMES J. RIZZO** is a senior consultant and actuary for Gabriel, Roeder, Smith and Company.