

# GRS INSIGHT

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## Valuing Public Pension Plans: Comparing Financial Economics with Conventional Approaches

Financial economics (FE) is a branch of economics that studies the valuation of corporations and investments. Over the past decade, adherents to these theories have successfully advocated applying FE principles to corporate pension plans. Over the past year, they have begun advocating applying FE to public pension plans. This article examines the FE approach and compares it with conventional actuarial approaches for valuing public plans. While the article discusses these approaches in the context of plan funding and financial reporting, it is not intended to address the application of FE to asset allocation decisions or the measurement of investment risk.

### Overview of the FE Approach

Financial economics is a branch of economics that studies the capital markets and examines why people invest, how investments should be valued, and how investment risk and return should be measured. Largely originating in the 1950s, much of financial economics emerged as a result of efforts to measure the value of publicly-traded corporations. Over time, financial economics has accumulated a body of knowledge about how capital markets work and how they might work more efficiently. Recently, FE theories regarding pension plans have had a significant influence on U.S. lawmakers and regulators, as evidenced by the 2006 Pension Protection Act's funding rules and the new private-sector accounting standards developed by the Financial Accounting Standards Board (FASB) in Statement No. 158.

Proponents of financial economics argue that unless a corporation's pension plan assets and liabilities are measured at market value and presented on the corporation's balance sheet, the corporation's value is distorted in its financial statements. Consequently, investors may pay too much (or too little) for investments in the corporation, making capital markets less efficient.<sup>1</sup> (see endnotes)

For pension liabilities and other items that do not trade in open markets, financial economics holds that the best estimate of their market value is the price of similar, openly-traded items of the same amount, timing, tax-treatment, liquidity, probability of payment, etc. From the perspective of financial economics, pension liabilities most closely resemble debt.

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Therefore, FE proponents argue that a market value of pension liabilities (referred to as the “MVL”) should be determined in the same way that bond prices are determined, i.e., by discounting the future cash flows using bond yields.<sup>2</sup>

Technically, the MVL is measured using the unit credit actuarial method and a risk-free (i.e., Treasury) bond discount rate, although discount rates based on investment-quality corporate bonds have also been used. The unit credit method calculates an accumulated benefit obligation based on service and salary as of the valuation date, and excludes projected future service and salary from the calculation.<sup>3</sup> Because the unit credit method excludes future salary and service, it is sometimes referred to as a “termination” or “settlement” measure. In essence, it reflects the liability for accrued benefits as if the plan terminated on the valuation date.

### Concerns with Conventional Approaches

Until recent years, proponents of financial economics had not extended this approach to public pension plans. However, several now advocate that public plans apply FE to measure and disclose their liabilities. This change appears to result from concern about the stability of public plans, which they see as threatened by growing unfunded liabilities, investment allocations containing excessive risk, and a propensity of governments to shift costs to future taxpayers.<sup>4</sup> According to the proponents:

1. The MVL approach would provide a standardized “market” measure of pension liabilities which, when compared with the market

value of assets, would provide a consistent measure of the plan’s funded status.

2. Because the MVL would generally be higher than that determined currently under conventional approaches, it would reduce the temptation of government decision-makers to increase benefits when plans are more than fully funded under conventional approaches.

3. Moreover, the higher pension contributions resulting from this approach would reduce the extent to which the contributions are deferred to future taxpayers.

4. As a result, this would help to stabilize the funding of public plans and promote their long-term sustainability.

However, not all agree with this approach.

### Differences Between FE and Conventional Approaches

As discussed in the Governmental Accounting Standards Board’s 2006 white paper, public- and private-sector entities exist for significantly different purposes and are accounted for differently as a result.<sup>5</sup> A government’s primary purpose is to maintain or enhance the well-being of its citizens by providing public services financed through taxes; whereas a business’s primary purpose is to benefit its shareholders by creating wealth based on voluntary transactions with its customers. Moreover, governments generally exist longer than businesses and are not typically subject to bankruptcy and dissolution.

Within this context, the GASB’s white paper notes that governmental

and business accounting standards are – and should be – different with regard to pensions and other post-employment benefits. For such benefits, the governmental accounting approach supports allocating long-term benefit costs to periods of service as a level percentage of payroll. This helps to smoothly spread the costs among different generations of taxpayers, promoting intergenerational equity. Level contribution rates also help governments better plan and budget their contributions.

Most public pension benefits are currently valued using the entry age actuarial method and a discount rate that reflects the long-term expected return on plan investments. The entry age method includes projected future service and salary in the cost calculations and often expresses contribution rates as a level percent of payroll. Discounting at the expected long-term investment return is intended to reflect likely future investment earnings given the plan’s diversified portfolio.

Generally, the FE approach produces a measure of the pension liability that would be roughly 15% higher than the liability produced under the conventional approach.<sup>6</sup> The difference results mostly from the use of the bond discount rate, which is lower than the expected return on plan assets.<sup>7</sup> Consequently, a plan that was 100% funded under the conventional approach would be about 87% funded under the FE approach, even if the lower contributions under the conventional approach were sufficient to fund the plan over time.

If the FE approach were used to determine plan contributions, the resulting contribution rates would

be significantly higher than those determined using conventional actuarial methods. For example, a recent study for a statewide pension plan found that the total contribution rate increased 34% under the FE approach as compared to the conventional approach, even though the MVL was only 13% higher than the conventional actuarial accrued liability.<sup>8</sup> The considerably higher contribution rate is due to both a higher normal cost under the FE approach and higher unfunded liability that would need to be amortized through contributions. These differences are almost entirely due to the use of the bond discount rate.

### Concerns with the FE Approach

For a number of reasons, most actuaries who work with governmental plans favor applying the conventional approaches to public plan funding and reporting. These reasons include:

1. Conventional approaches better reflect the underlying nature and dynamics of public pension plans. The theoretical basis of the FE approach is that pension cash flows have the same structure as bond cash flows. However, pension cash flows typically depend on factors not included in bond cash flows, such as future service and salary increases.<sup>9</sup>

The unit credit actuarial method advocated by proponents of the FE approach does not incorporate future service or salary increases after the valuation date in its measure of the plan's liability. However, for the vast majority of public pension plans, benefits are based on a participant's final average earnings and service. Moreover, these benefits are often protected from diminishment under state or local laws. A valuation ap-

proach that ignores a fundamental component of the retirement benefit will not reflect the underlying dynamics of the plan and will not provide an accurate or useful measure of the plan's liabilities. Additionally, because the FE approach does not include projected future salary and service, plan contribution rates will not only start out higher than under the conventional approach, they will likely increase as service and salary increase.

In addition, discounting the pension cash flows using bond yields ties the liabilities to external changes in the supply and demand for bonds, which are unrelated to the benefits promised by the plan. Consequently, small changes in this discount rate could result in large changes in reported plan liabilities, even though there were no changes in the benefits promised by the plan.

2. Conventional approaches provide better information about the contributions needed to fund the plan and the plan's funded status. Because the FE approach does not reflect the fundamental underlying dynamics of the plan, it would not be appropriate to use it to determine the contributions necessary to fund the plan. It could also create a false impression that the plan is underfunded, even though other accepted actuarial methods show it is well-funded. As noted above, a plan that was 100% funded under the conventional approach was only 87% funded under the FE approach, even though the lower contributions under the conventional approach were likely sufficient to fund the plan over time.

3. Conventional approaches are more likely to provide for stable contribution rates and more equitable

allocations of costs between current and future taxpayers. Proponents of the FE approach argue that the current approach to funding public pension plans results in government (and therefore taxpayer) contributions that are lower than necessary to fund the plan. As a result, future taxpayers would need to pay higher contributions to make up the difference, violating the principle of intergenerational equity.

However, as discussed above, if the FE approach were used to determine plan contributions, the resulting contribution rates would likely be significantly higher than those determined using conventional actuarial methods. Consequently, current taxpayers would pay significantly more to fund the plan than they do now. Moreover, if the contributions were invested in a diversified portfolio that earns returns that are significantly higher than the bond discount rate, the plan would become fully funded more rapidly than under current funding schedules. Therefore, at some point, future taxpayers would likely pay less. This too would violate intergenerational equity.

In addition, suddenly higher computed contribution rates would not necessarily motivate governments to make additional contributions. Furthermore, if the contributions were perceived to be artificially higher than the amount needed to fund the plan, there would be a disincentive to contribute the full amount, as well as a tendency to ignore the work of the actuary.

4. Conventional approaches are more likely to support better decisions related to public plan funding. Legislators, taxpayers, and members of the press will have difficulty dis-

tinguishing the different purposes behind reporting a “market value liability” and a “funding liability.” Consequently, instead of making financial reporting more transparent, the FE approach would likely lead to confusion about the costs and sustainability of the plans. In turn, this could result in poor policy decisions and potentially lead to the needless abandonment of public pension plans.

This confusion is illustrated in the history of the Governmental Accounting Standards Board’s Statement No. 5.<sup>10</sup> Issued in 1986, the statement required two measures of a public pension plan’s liabilities to be disclosed in the plan’s financial reports (as well as the financial reports of the plan sponsors). One measure was determined using the actuarial method and assumptions used to fund the plan. The other was determined using the same assumptions, but applied the projected unit credit (PUC) actuarial method. This second measure was intended to provide a standardized measure of the plan’s liability that could be compared across all public plans.

In 1994, however, the GASB revised its rules and eliminated the PUC measure. In explaining this change, the GASB noted that the presentation of two pension liabilities created significant confusion among readers of the financial reports. The Board concluded “the understandability and usefulness of financial reports are enhanced when the actuarially determined pension information is calculated ... consistent with the funding methodology.”<sup>11</sup>

## Conclusion

Public pension plans have faced significant strains over the past de-

cade. The downturn of the domestic equity markets from 2000 through 2002 resulted in plan funding ratios falling, on average, from a little over 100% to about 86%. The need to amortize this sudden increase in unfunded liabilities resulted in increased employer contribution rates during a time of fiscal stress for state and local governments. Moreover, some governments had increased pension benefits in the late 1990s, believing that the high investment returns at the time would continue. While resolving these issues is important to the long-term sustainability of public pension plans, there are a variety of ways to approach them, including:

1. To the extent there is too much risk in public pension portfolios, pension administrators and trustees should diversify their investments in ways that better manage downside risk. If this results in lower expected returns, these lower returns should be reflected in the actuarial assumptions used under conventional actuarial methods.
2. To the extent governments have promised benefits based on plan “overfunding,” they should realize such promises will be difficult to sustain. Labor groups should recognize this as well and work to ensure that the benefits promised can be reasonably sustained over the long-term.
3. To the extent governments are not making their full actuarially determined contributions to the plan, they should recognize that the difference will likely need to be paid in the future with interest. Taxpayers should understand this as well and monitor their governments to ensure that the necessary contributions are made.

## Endnotes

1. Society of Actuaries and American Academy of Actuaries, *Pension Actuary’s Guide to Financial Economics*, 2006.
2. Generally, current actuarial standards require the discount rate to reflect the investment return assumption. However, for financial reporting and certain other purposes, the standards allow the discount rate to reflect “anticipated returns on a hypothetical asset portfolio.” Actuarial Standards Board, ASOP No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*, September 2007, page 5.
3. Under FASB Statement No. 158, the projected unit credit actuarial method is applied to calculate the related liabilities, rather than the unit credit method. Like the unit credit method, the projected unit credit method does not include projected future service; however, it does include projected future salaries.
4. Richard Ennis, “What Ails Public Plans? And How Can They Become Strong Again?” Ennis Knupp & Associates, 2007.
5. Governmental Accounting Standards Board, “Why Governmental Accounting and Financial Reporting Is – And Should Be – Different,” March 2006.
6. Ennis, page 4. The article reports current public pension funding levels of 86% under the conventional method verses 75% under the FE approach, using a 5.5% discount rate. This suggests the FE approach would result in a liability that is 15% higher than the liability measured under the conventional approach.
7. While the FE approach produces a higher liability than conventional methods, this is due to applying a discount rate that is significantly lower than expected investment returns.
8. The study compared results using the plan’s conventional actuarial method (entry age normal with an 8% discount rate) with the FE approach (unit credit with a 5.5% discount rate).
9. David Kausch, “The Case for Stock in Pension Funds,” *Contingencies*, January/February 2008. This article discusses the differences between pension and bond cash flows and the related implications for pension valuations and investments.
10. GASB Statement No. 5, *Disclosure of Pension Information by Public Employee Retirement Systems and State and Local Governmental Employers*, November 1986.
11. GASB Statement No. 25, *Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans*, November 1994, paragraph 131.

# BLS Releases National Survey of State and Local Government Retirement and Health Care Benefits

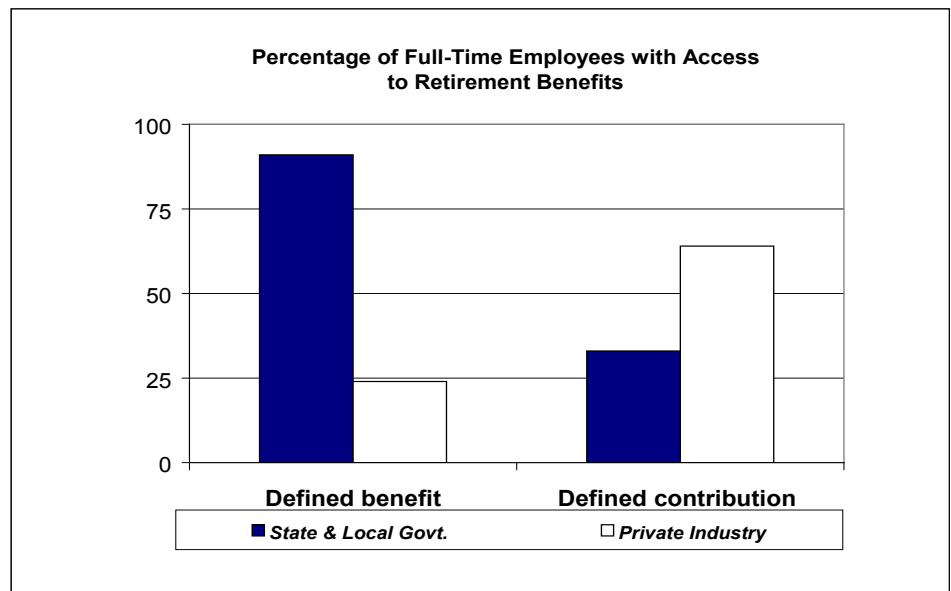
This March, the U.S. Bureau of Labor Statistics (BLS) released its report: *National Compensation Survey: Employee Benefits in State and Local Governments* for September 2007. The report updates an earlier study of state and local government employee benefits, last issued in 1998.

The current study provides statistical information about retirement, health care, and other benefits provided to active governmental employees. Unlike the prior study, the current study not only examines employees' access to benefits, but also the extent to which employees "take-up" (i.e., participate) in the benefits.

The report parallels the recent BLS report *National Compensation Survey: Employee Benefits in Private Industry* for March 2007, making it easier to draw comparisons between benefits offered in the public and private sectors. The remainder of this article briefly compares retirement and health care benefits offered to full-time employees in state and local governments and private industry, using the data presented in the two reports.

## Retirement Benefits

According to the reports, retirement benefits are offered to 70% of full-time employees in private industry and 99% of full-time employees in state and local governments. As shown in the graph at the top of the page, the vast majority (91%) of full-time state and local employees have access to defined benefit plans, while such access is offered to only 24% of full-time private employees.



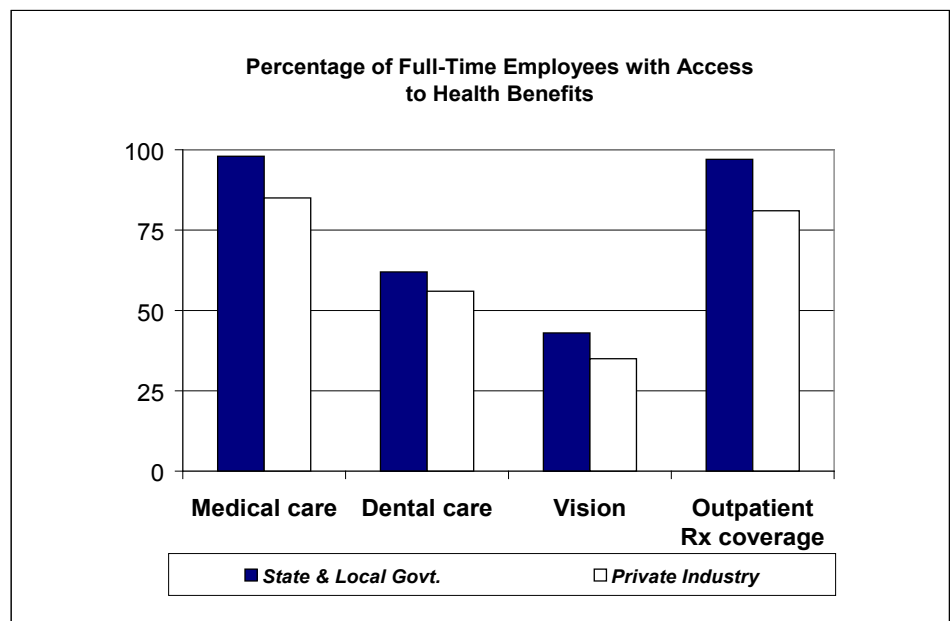
Almost two-thirds (64%) of full-time private employees have access to defined contribution plans, compared with 33% in the public sector. <sup>1</sup> (see endnote)

Of public-sector employees in defined benefit plans, 76% are required to contribute toward their benefits. In most cases, these employee con-

tribution rates are a fixed percentage of earnings, with the median being 6.4%. For private-sector employees in defined benefit plans, only about 3% make employee contributions.

## Health Care

As shown in the graph below, almost all full-time state and local govern-



mental employees (98%) have access to medical benefits, compared with 85% in private industry. Access to dental and vision care is lower for both groups; while access to outpatient prescription drug coverage parallels access to medical care.

As discussed in the BLS report, most active full-time state and local governmental employees are required to contribute to their medical premiums. For employees with single coverage, 61% are required to pay a share of monthly premiums, averaging about \$73 for employees and \$381 for employers. For employees with family coverage, 86% are required to pay a share of the premium, averaging \$320 for employees and \$752 for employers.

Most full-time private-sector employees are also required to pay a portion of their medical premiums. For employees with single coverage, 76% pay a share of monthly premiums, averaging \$81 for employees and \$266 for employers. For employees with family coverage, 87% pay a portion of the premium, averaging \$312 for employees and \$644 for employers.

BLS intends to begin publishing the benefit data every year, issuing separate reports for private industry and state and local governments. Data for March 2008 is expected to be available later this year.

### Endnote

1. Although somewhat unclear, it appears the 33% of public-sector employees with access to defined contribution plans includes those with access to 403(b) tax-sheltered annuities and 457(b) deferred compensation plans.

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# GRS

## Offices

### CHICAGO

20 North Clark Street, Ste. 2400  
Chicago, IL 60602-5111  
(312) 456-9800  
(312) 456-9801 Fax

Contact: Mike Kivi

### DALLAS

5605 N. MacArthur Boulevard, Ste. 870  
Irving, TX 75038-2631  
(469) 524-0000  
(469) 524-0003 Fax

Contact: Mark Randall

### DENVER

4600 S. Ulster Street, Ste. 700  
Denver, CO 80237-2882  
(303) 846-3031  
(303) 846-3028 Fax

Contact: Leslie Thompson

### DETROIT

One Towne Square, Ste. 800  
Southfield, MI 48076-3723  
(800) 521-0498  
(248) 799-9000  
(248) 799-9020 Fax

Contact: Judy Kermans

### FT. LAUDERDALE

One East Broward Boulevard, Ste. 505  
Ft. Lauderdale, FL 33301-1872  
(954) 527-1616  
(954) 525-0083 Fax

Contact: Theora Braccialarghe

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