State Notes

TOPICS OF LEGISLATIVE INTEREST

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Apples or Oranges: Making the Right Pick for Pension Accounting
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Introduction

Provisions for income during retirement have been a common news item for years, most recently covering a variety of issues, including: proposals to reform social security, the General Accounting Office's examination of why workers' access to private pension plans remains limited, the new accounting standards for private pension plans that were included in the transportation bill Congress passed this summer, the new rules issued by the Governmental Accounting Standards Board (GASB) this past summer, and the array of pension reforms adopted by state and local governments. Pension issues also have been an international topic, with 33 of the 34 countries studied by the Organization for Economic Cooperation and Development (OECD) adopting some level of pension reform (for public pensions, private pensions, or both) within the last five years.

The global financial collapse in 2008, and ensuing recession, added to the pressure on pension and retirement systems. Significant declines in the value of assets lowered the returns earned by pension and retirement systems, while growing numbers of retirees have added to system costs, which have been covered by smaller employee bases and lower business sales. While Federal laws largely govern how private pension systems must adapt to these pressures, most states manage their own public retirement systems. A March 2012 study from the Pew Center of the States estimated a $1.4 trillion gap in fiscal year (FY) 2010 between states' assets and the obligations they face under the public sector retirement plans. In an attempt to address issues with their pension systems, 44 states have enacted pension reform legislation since 2009. Some of these changes have been major, others minor, but nearly all have reduced pension benefits and/or increased employee contributions.

The gap between assets and obligations calculated by the Pew Center used states' own actuarial assumptions, funding levels, and contribution policies as of FY 2010, although in some cases states have made subsequent legislative changes to their pension systems. However, as evidenced by the GASB standards released this past summer, there are also questions about the actuarial assumptions states have employed under their pension systems. This article will focus on two key assumptions in pension accounting: the rate of return earned on assets, and the rate used to discount the cost of future liabilities.

The Rate of Return on Assets

The two most significant rates associated with pension accounting are the rates used to discount the value of future liabilities (the discount rate) and the long-run rate of return on pension system assets. While neither assumption changes the market values of the assets or liabilities of the plan, the assumptions do make it possible to evaluate future values in terms of current values. Although primarily focused on reporting, the assumptions do play a role in evaluating whether a retirement system is likely to have enough assets to cover its liabilities.

The difference between the discount rate and the rate of return is important. Traditionally, the discount rate is intended to represent the rate at which pension benefit obligations would be

effectively settled: the rate implicit in current prices of annuity contracts that could be used to settle (i.e., terminate) the pension obligation. As a result, the discount rate is usually chosen at a rate reflecting the risk associated with the pension liabilities. On the other hand, the assumed rate of return is the long-term expectation of returns on current and future investments and represents the credit component when the net pension cost is computed.

Recent discussions in Michigan have focused on the assumed long-run rates of return used by the State, particularly those used by the Michigan Public School Employees' Retirement System (MPSERS), and whether the assumed rates should be indexed to some external rate. The current hybrid MPSERS retirement plan (for employees hired after July 1, 2010) assumes a long-run rate of return of 7.0%. According to data on public defined benefit retirement systems from Boston College's Center for Retirement Research, the median discount rate adopted during 2009 was 8.0%, with assumed returns ranging from 7.0% to 8.5%. Similarly, a study of Fortune 1000 firms by the actuarial firm Towers Watson indicated that in 2010 the median assumption for the long-run rate of return was 8.0% and that 62.0% of companies employed an assumption between 7.51% and 8.5%. Only 12.0% of companies assumed a long-run rate of return of 7.0% or lower. The survey indicated that 55.0% of companies maintained their 2009 long-run rate of return assumption in 2010 and that the average change in 2010 was a decline of six basis points, or 0.06%.

While private retirement plans do alter their long-run rate of return assumptions, the changes are often small and reflect changes in expectations over the long-run rather than changes in a current measure. Neither the academic or professional literature, nor actual practice, supports the concept of a varying, indexed long-run rate of return subject to substantial variations. Furthermore, assumptions regarding the long-run rate of return on assets do not differ substantially between private plans and public plans. The current rates of return employed by Michigan public retirement systems, including MPSERS, are consistent with both private and public practice as well as the literature.

Discount Rates

Governmental accounting standards currently allow public pension systems to use the assumed long-run rate of return as the discount rate. The rationale is that governments have the ability to meet pension needs through taxation, as opposed to private companies' needing to issue corporate bonds or generate additional sales or other business receipts, and the tax revenue can be invested to earn returns. Similarly, because public entities may use tax revenue to satisfy pension obligations, a government presumably could end its pension obligation without needing to purchase an annuity to satisfy the obligations. Private companies do not have access to this type of revenue stream to meet benefit obligations and thus are not allowed to use the rate of return to discount liabilities.

Private companies are allowed to select a discount rate from a variety of measures, although firms subject to certain requirements from the Pension Benefit Guaranty Corporation are subject to more limitations on the rates they select. Private companies typically select discount rates based on corporate bond yields, because this approach reflects an easily measurable cost of obtaining the revenue to meet obligations. Measuring the cost of alternative funding sources,

such as stock issues or residual profit revenue from firm revenue such as sales, is far less certain and far more difficult.

Various indices are available to guide private sector plans in choosing a discount rate. In a survey of discount rates employed by the pension systems at Fortune 1000 companies, the median discount rate in 2010 was 5.4% with individual plans exhibiting rates that varied from 3.6% to 6.5%. The survey indicated that 38.0% of Fortune 1000 firms adopted a discount rate between 5.26% and 5.5%. Only 10.0% of private sector companies adopted a discount rate of 5.0% or lower. In 2010, 97.0% of firms lowered their discount rate assumption, with 40.0% of firms lowering less than 50 basis points (0.5%) and 56.0% of firms lowering between 50 and 99 basis points (between 0.5% and 0.99%).

A study of public defined benefit retirement systems indicated that the median discount rate adopted during 2009 was 8.0%. In comparison, the average discount rate among Fortune 1000 firms was 5.39% in 2010, down from 5.84% in 2009. Part of the decline from 2009 in the rate used by private pension systems reflected legal requirements for private pension systems.

In July 2012, however, the Federal government enacted Public Law (P.L.) 112-141, making a number of changes to the laws governing private pensions. Among the provisions of P.L. 112-141, the averaging period used by private pension systems to compute a discount rate is increased from a 24-*month* average to a 25-*year* average. The change is estimated to result in higher allowed discount rates, with some estimates placing the increase at more than two percentage points, and thus allow private employers to reduce their pension contributions. As a result of the legislation, minimum contribution rates for private pensions are expected to decline, with contribution rates expected to fall approximately 43.0% in 2012. A Society of Actuaries' study of the legislation estimated that the gap between the median funding level under the previous law and the new legislation could exceed $100.0 billion for the period from 2014 to 2019, and cautioned that even a small percentage of defaults could result in losses measured in billions.

Before P.L. 112-141 was enacted, significant differences existed between the discount rates employed by private pension systems and those employed by public pension systems. Using the long-run rate of return on assets as the discount rate, as allowed by governmental accounting rules, would place the discount rate for Michigan's traditional State Employees' Retirement System (SERS) and the pre-hybrid MPSERS plan at 8.0%, and the rate for the hybrid MPSERS plan adopted in 2010 at 7.0%, compared with a median discount rate of 5.4% for private pension plans. As private plans adjust to the provisions of P.L. 112-141, much of the gap between the discount rates used by private plans and those currently used by the State of Michigan, and other states, will be eliminated.

New Governmental Accounting Standards

Both the academic and the professional literature, as well as actual practice, indicate that reforms should focus more on the discount rate than on the long-run rate of return on assets. Furthermore, research over the last several decades suggests there may be sound reasons to reconsider the discount rates public pension systems are allowed to adopt. As a result, GASB issued new rules for public pension accounting this past summer. The most significant of these changes affect the way public pension plans will be required to compute the discount rate.

Under current law, a public pension plan's choice of both the discount rate and the long-run rate of return rates is largely arbitrary. Under the new accounting standards, however, the choice of a discount rate will be somewhat more limited and public pension systems will be required to adopt discount rates that generally will be lower than those currently employed. These lower rates will result in the calculated pension system liabilities' being larger than they are under current practice and will increase the degree by which public plans are underfunded. Furthermore, the new discount rates will be related to measures and circumstances that will vary over time.

The discount rate selected under the new accounting standards is a blended rate that incorporates aspects of the assumed long-run rate of return and a rate representing the yields on 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa (or equivalent). A discussion of how the actual rate is to be calculated is beyond the scope of this article. However, the choice of how to determine the bond yields under the calculation is relevant and could be specified by the Legislature or left to the actuaries working with the State's pension plans. Several indices are available, and the differences between them are not substantive from a conceptual basis. According to a 2009 article in the American Economic Review, "every available proxy has shortcomings relative to the theoretically ideal set of discount rates". In selecting the discount rate, the Pension Section Council of the Society of Actuaries argues that using a single index to set discount rates for measuring pension accounting liabilities does not represent best practice methodology. As a result, best practices would suggest that one measure should not be examined to the exclusion of other measures. Both references suggest that pension systems should look at a number of such rates and choose a way to balance the differences given individual preferences regarding the shortcomings of each individual measure.

An Illustrative Example

At the end of this article, Table 1 illustrates a simplified retirement system that does not have the resources to meet its obligations (is underfunded) in order to demonstrate the impact that varying the assumptions for long-run rates of return and discount rates would have on a retirement plan. The example uses an underfunded plan because the new GASB rules effectively do not affect the discount rate for a system that can show it is funded using the assumed long-run rate of return as a discount rate. The example assumes a system with $1,000 in assets in Year 1. Assets are assumed to grow at the long-run rate of return and are supplemented by annual contributions. In Year 1, the contributions total $50, and increase by 3.0% per year. Also in Year 1, the system is assumed to have expenses (liabilities) of $200, which grow at a rate of 10% per year. Expenses are paid from assets. When values under the new GASB rules are computed, the table assumes that the rate representing yields on 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa equals 4.0%. The table presents values only for 10 years, while an actual accounting would cover at least 30 years or until all the obligations (liabilities) were paid. As a result, another way of considering the table would be to assume it represents a closed system that will have satisfied all its liabilities and will cease to make payments after 10 years.

The top part of the table illustrates the impact of different assumed long-run rates of return. At an 8.0% rate, the plan is able to maintain a positive balance through Year 6 and is able to meet

approximately half of the obligations in Year 7. In contrast, under a 4.0% rate of return, the plan's funds are exhausted more rapidly, reaching zero late in Year 6.

The balances shown in the top part of the table reflect the balance in the year they are listed. However, it is necessary to translate those values to current dollars in order to evaluate the extent to which the plan is underfunded. As indicated above, the discount rate is part of the calculation that translates the future values into their present values. In the section labeled "Present Value of Any Shortfall, Current Practice", Table 1 presents the current value of a shortfall when the discount rate equals the assumed long-run rate of return. For example, if the long-run rate of return is assumed to be 7.0%, the discount rate also will equal 7.0% and the current value of the shortfalls in Years 7, 8, 9, and 10 will total $810. This section of Table 1 shows much higher unfunded liabilities with lower assumed rates of return.

The listed shortfalls reflect a combination of the impact of a lower assumed rate of return reducing interest revenue and the lower discount rate increasing the current value of future liabilities. For example, if the long-run rate of return is assumed to be 8.0% and the discount rate is 8.0%, the current value of the shortfall is $709, as shown in the table. If both the rate of return and the discount rate are lowered to 4.0%, the current value of the shortfall totals $1,208, as shown in the table, a $499 increase in the shortfall. Determining how much of the impact is due to which change, however, depends on the order in which the calculation is decomposed.

If the discount rate remains at 8.0% but the rate of return is lowered to 4.0%, the current value of the shortfall increases from $709 to $878 (not shown in the table), suggesting that roughly two-thirds of the $499 increase in the current value of the shortfall is attributable to lowering the discount rate. However, if the return remains at 8.0% and the discount rate is moved to 4.0%, the current value of the shortfall increases from $709 to $990 (shown in Table 1, in the section labeled "Present Value of Any Shortfall, 4% Discount Rate"), indicating that approximately 56.3% of the $499 increase in the shortfall reflects the impact of lowering the discount rate. Regardless of which way the change is decomposed, most of the impact of lowering both the rate of return and the discount rate, under current practice, is attributable to the change in the discount rate – highlighting the importance of the discount rate assumption.

The section labeled "Present Value of Any Shortfall, 4% Discount Rate" is presented to emphasize the significance of the discount rate on calculating the health of the retirement plan. As demonstrated in the preceding paragraph, the way in which changes are decomposed is important, and this section of Table 1 illustrates the approach that attributes the smaller portion of the impact to the discount rate. (The shortfall increases from $709 to $990, accounting for $56.3% of the $499 increase from $709 to $1,208, if both rates are changed.) Despite taking this approach, Table 1 demonstrates that the discount rate is a more critical assumption than the long-run rate of return in calculating any unfunded liabilities – a conclusion consistent with the professional and academic literature. (Under this approach, changing the discount rate increases the shortfall by $281, compared with a $218 increase attributable to changing the rate of return. If the other approach, not illustrated in the table, were evaluated, the change in the discount rate would account for $330 of the increased shortfall, compared with $169 due to the change in the rate of return.) Lowering the discount substantially increases the magnitude of any funding shortfalls, much more than does lowering the assumed rate of return.

The bottom section of Table 1, labeled "Present Value of Any Shortfall, New GASB Approach", demonstrates the impact of the new GASB rules on calculating and reporting unfunded liabilities. The calculated discount rate also is shown under the varying long-run rate of return assumptions. As Table 1 illustrates, even significant changes in the assumed rate of return cause relatively small changes in the unfunded liability. For example, doubling the rate of return assumption, from 4.0% to 8.0%, reduces the unfunded liability only by 26.2% (from $1,208 to $891). A similar comparison for doubling the discount rate is not relevant because such a change is effectively not an administrative decision allowed under the new GASB rules. While not illustrated in the table, if the computations were extended for a longer period of time, the differences between the columns showing different assumed rates of returns would be even less. For example, if the table were extended for 30 years, doubling the rate of return assumption from 4.0% to 8.0% would reduce the unfunded liability only by 23.4%. As a result, under the new GASB rules, the choice of the assumed long-run rate of return exerts a minimal impact on the magnitude of any potential funding shortfalls in a retirement plan.

Conclusion

This article has discussed two key assumptions related to public pension accounting: the assumed rate of return on assets and the discount rate. Based on a review of actual rates of return used in both the public and private sectors, as well as the academic and professional literature, the long-run rates of return assumed by Michigan retirement systems such as SERS and MPSERS appear consistent with (and in the case of the hybrid MPSERS plan, slightly lower than) recommended levels and actual practice. As a result, substantive changes to the assumed long-run rate of return do not appear necessary. Furthermore, linking the long-run rate of return to a single index does not appear to be recommended by either practice or research.

Research suggests that the discount rate assumed by the State should not be the same as the long-run rate of return. Generally, the discount rates employed in private retirement plans differ from the assumed long-run rate of return. The academic and professional literature suggests that an appropriate discount rate should reflect the volatility associated with the expected liabilities of the plan. As a result, the discount rate should generally be lower than the rate of return. The literature also indicates that such a focus for the discount rate is more appropriate than considerations such as the ability of the government to raise capital. Given the circumstances of the State's expected liabilities, the research would suggest that appropriate rates would be less than those used currently.

The new accounting standards from GASB will likely result in lower discount rates, and thus increase reported pension liabilities and increase the degree by which plans are underfunded. These standards do not affect the actual liabilities the State's retirement plans face, or the value of current assets. The standards relate to the way future values should be adjusted to the present for reporting purposes, with the intent to provide a more accurate view of the health of pension systems. The changes recommended by GASB would also appear to address most of the issues raised with public pension system accounting, regardless of what assumptions pension plans make about the long-run rate of return on their assets.

Table 1

Example of the Impact of Varying Rate of Return and Discount Rate Assumptions

			Assets, with Rate of Return at				Balance, with Rate of Return at			
Year	Expenses	Contributions	8.00%	7.00%	6.00%	4.00%	8.00%	7.00%	6.00%	4.00%
0	---	---	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
1	$200	$50	1,134	1,124	1,113	1,092	934	924	913	892
2	220	52	1,064	1,043	1,022	981	844	823	802	761
3	242	53	969	938	907	847	727	696	665	605
4	266	55	844	803	763	686	578	537	496	420
5	293	56	685	634	586	495	392	342	293	202
6	322	58	486	427	372	271	164	105	50	(52)
7	354	60	242	177	116	8	(112)	(178)	(238)	(346)
8	390	61	0	0	0	0	(390)	(390)	(390)	(390)
9	429	63	0	0	0	0	(429)	(429)	(429)	(429)
10	472	65	0	0	0	0	(472)	(472)	(472)	(472)

Present Value of Any Shortfall, Current Practice: Discount Rate = Rate of Return

Year	8.00%	7.00%	6.00%	4.00%
0	$0	$0	$0	$0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	(41)
7	(66)	(111)	(158)	(263)
8	(211)	(227)	(245)	(285)
9	(214)	(233)	(254)	(301)
10	(218)	(240)	(263)	(319)
Total Shortfall (Unfunded Liability), Current Practice	**($709)**	**($810)**	**($920)**	**($1,208)**

Present Value of Any Shortfall, 4.0% Discount Rate

Year	8.00%	7.00%	6.00%	4.00%
0	$0	$0	$0	$0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	(41)
7	(85)	(135)	(181)	(263)
8	(285)	(285)	(285)	(285)
9	(301)	(301)	(301)	(301)
10	(319)	(319)	(319)	(319)
Total Shortfall (Unfunded Liability), 4.0% Discount Rate	**($990)**	**($1,040)**	**($1,086)**	**($1,208)**

Present Value of Any Shortfall, New GASB Approach

Year	8.00%	7.00%	6.00%	4.00%
0	$0	$0	$0	$0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	(41)
7	(79)	(127)	(173)	(263)
8	(259)	(265)	(271)	(285)
9	(271)	(278)	(285)	(301)
10	(283)	(291)	(300)	(319)
Total Shortfall (Unfunded Liability), New GASB Approach	**($891)**	**($961)**	**($1,029)**	**($1,208)**
Discount Rate Under New GASB Approach	5.24%	4.94%	4.64%	4.00%

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