Public Pensions, Public Budgets, and
the Risks of Pension Obligation Bonds

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Abstract

Budgeting is the core financial task in subnational governments. Although limited research has outlined the relationship between the annual operating budget and public pension funds, the existing literature has not considered the manner in which financial resources are measured within government budgets, how this measurement of resources might affect public budget decisions, and how the interaction of the budget with the actuarial model can lead public budget managers to engage in financially damaging transactions such as pension obligation bonds. This paper fills this void, and argues that the short-term nature of public budgeting coupled with the actuarial model's use of expected investment returns rather than a market discount rate for pension liability measurement causes governments to shift risk to future generations. This paper also recommends that a blended discount rate for pension liabilities be considered more appropriate when governments fund their annual pension expenditures using debt rather than equity (such as tax revenues).

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Introduction

Analyses and discussions of public pension plans often ignore or overlook an important reality, that these separate legal entities are intertwined with sponsor governments' annual operating budgets. Recently, research has highlighted the interplay of public pensions and the operating budget for state and local governments (for example, Peng 2004). Governments, however, measure resources in their operating budgets differently than private companies; to date, no research has examined specifically whether this difference in resource measurement might affect decisions regarding *how* to fund pension systems from the operating budget. This paper fills this void and demonstrates how governmental resource measurement coupled with the unique actuarial model for measuring public pension liabilities can lead public managers to use risky pension obligation bonds.

The first section of this paper outlines how public budgets measure resources; the second section focuses on how this measurement basis might affect a government's handling of its annual pension obligations; the third section makes a theoretical argument that the shortcomings in public budgeting are augmented by the actuarial model itself; this section also shows how these shortcomings might lead to the usage of pension obligation bonds, at a cost to the sponsoring government; the fourth section quantifies these costs; and the final section discusses and concludes.

Public Budgeting and Resource Measurement

Budgeting is the core financial task undertaken by subnational governments (Peng 2004). Fundamentally, public budgeting is short-term in nature: budgets are primarily prepared on an annual basis, allowing for a short-term focus regarding resource availability, desired financial ends, and governmental financial condition. This short-term focus was in many cases enshrined into law as a means of exerting control over public executives, requiring them to abide by spending limits approved by legislatures. Some governments, such as New York City, also budget future years as well, but the time frame is generally no longer than five years. The short-term nature of public budgeting might lead to current concerns – such as budgetary pressure, union demands or liquidity issues – taking precedence over long-term goals – such as structural budgetary balance, long-term financial condition, and fully funded pension plans.

While business entities measure resources on the accrual basis, government budgets tend to measure resources either on the cash basis or the modified accrual basis. The full accrual measurement in the private sector is based on the matching principle to allow an accurate assessment of profitability and economic activity, requiring information on future obligations to assess organizational performance during the time period. On the other hand, cash/modified accrual measurement focuses instead on current financial resources only. Again, since public budgeting is concerned with ensuring executive compliance with legislative fiscal goals rather than profitability, this focus on financial (rather than economic) resources is the norm for the public sector.

Yet, cash and modified accrual measures can provide no relevant information to decision makers concerning future obligations. By definition, a basis of measurement that is based on cash inflows and outflows can only be concerned with the short-term, since anticipated *future*

inflows or outflows (such as pension expenditures) are not included in *current* measures (Lee, Johnson, and Joyce 2004). Coupled with the single-year focus of most public budgets, this cash or modified accrual basis of budgeting further centers public managers' attention on the current or near-current, often at the expense of the future.

The cash and modified accrual bases of budgeting have another important implication especially with respect to public pensions. These budgets are only concerned about *funding* annual pension expenditures. They are not ultimately concerned about the annual pension *costs* (implying a usage of resources). The modified accrual basis of accounting treats as an expenditure: "the amount contributed to the plan or expected to be liquidated with expendable available financial resources."[2] The pension expenditures of governments, then, do not relate to economic activity or the present value of liabilities; instead, it is related to funding only. With respect to pension funding, the government budget manager is ultimately less concerned (if at all) with pension costs, and solely concerned with the effect the pension fund's assets and liabilities have on annual required contributions (ARCs). The actuarial model actually accommodates this reality quite easily. Since gains and losses are smoothed over time, the budget manager perceives a much smoother and less volatile ARC because of the actuarial model.

A final important aspect of governmental budgeting is the notion of balanced budget requirements. Budgeting in many cases follows legal requirements established in city charters or state constitutions. Furthermore, these statutes were largely written and codified prior to any real appreciation for the appropriate recognition of resource inflows or outflows, essentially writing cash-basis budgeting into law; the terminology tends to allow governments to have balanced

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[2] GASB Statement 45.

budgets that only need to balance when they are adopted and not necessarily at year-end, or balance only inflows and outflows (Ives 2006). Balanced budget requirements do not speak of revenues covering costs or expenses, for public budgets and balancing requirements are more concerned with financial versus economic resources of the government. Poterba (1996) details the differences in balanced budget requirements between states, and further notes that states generally lack any true enforcement mechanism with respect to balanced budget requirements.

Public Budgets, Pension Expenditures and Fiscal Stress

Pension funds are separate legal entities from the sponsoring government, being reported as fiduciary funds in governments' financial statements. In relation to pension funds, the budget manager's primary concerns are: funding the pension expenditure at the lowest possible cost, and the size of the pension expenditure relative to other expenditures. When governments face fiscal stress on their budgets (rising expenditures, falling revenues, or a combination of both), the pension expenditure is often a target for budgetary gimmickry. Since pension obligations will not come due until the future, governments often turn to two gimmicks to balance the budget: 1) failing to fund the pension expenditure (termed "pension holidays" in some jurisdictions), and 2) issuing pension obligation bonds.

Pension Holidays

Governments have used the pension holiday budgetary gimmick for decades. In fact, public pensions emerged as a public policy concern in the 1970s as concerns grew that states and municipalities were failing to set aside enough resources for promises made to current and past employees. One study placed the estimated ratio of public pension assets compared to public

pension liabilities at approximately 50 percent in the mid-1970s.[3] The lack of standardized reporting, accounting, and financing data coupled with the inherent diffusion of such data (since, at the time, there were over 2,500 pension plans nationwide) made pinpointing the exact funding level impossible.[4] By failing to fund current expenditures, budget managers hope that future investment returns will be strong enough to recoup not only the lost contributions, but also the lost earnings on these contributions.

Pension Obligation Bonds

Another option for governments is to issue pension obligation bonds (POBs). These debt issues emerged in the 1980s as a vehicle to infuse large amounts of cash into underfunded public pension systems nationwide. This underfunding was the result of failing to fund annual pension expenditures adequately. In its earliest incarnation, subnational governments would borrow money at their tax-exempt (and, therefore, below risk-free) rate of interest. The proceeds from the bond offering would be placed into the public pension fund that could then invest in risk-free Treasury bills, thereby creating an arbitrage opportunity for governments. The tax-exemption of municipal debt allowed subnational governments to profit at the expense of the federal government. However, the Tax Reform Act of 1986 (TRA86) contained provisions that forbade future pension obligation bond issues from receiving tax-exemption.[5] By removing the tax arbitrage opportunity, TRA86 effectively halted pension bond activity by subnational governments.

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[3] U.S. GAO, 1996.

[4] The lack of public pension data was cited as one reason public pensions were excluded from the original 1974 ERISA legislation that covered private pension plans. See U.S. GAO, 1979.

[5] Section 148 of the Internal Revenue Code of 1986 removed the tax exemption for arbitrage bonds issued by subnational governments.

During the 1990s, strong stock market returns induced public pensions to shift more investments into equities, seeking to capitalize on the higher returns available compared to fixed income securities. Peng (2004) shows that public pension plans increased equity holdings by over 50 percent during the decade.

At the same time, POBs re-emerged, described by some as a potential arbitrage opportunity for governments. By issuing taxable debt, it was argued, governments could invest long-term in higher yielding equities. Unlike in the private sector, where pension liabilities are discounted by a market-value rate, public pension liabilities are discounted using the assumed rate of return on investments. Budget managers–with input from financial advisors and investment bankers–often argue that POBs save money and reduce budgetary pressure because the expected return on the investments bought with the bond proceeds will exceed the cost of the debt. The argument can be reduced to the equation:

$$E(R_i) = E(R_1) - r_b \tag{1}$$

where $E(R_1)$ is the expected return of the investment and r_b is the interest cost of the borrowed funds. The government would not choose to borrow at r unless the investment return was expected to exceed the cost of the borrowing.[6] If a risk-free discount rate were substituted for $E(R_1)$ in equation 1, POBs would not be issued by governments because the cost of the debt would invariably be greater than the discount rate, increasing fiscal stress on the public budget.

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[6] An additional point is worth mentioning, although it is not explored in detail here. POBs are marketed by financial professionals and governments as equation 1. Yet governments do not budget only on investment returns and interest costs. Recall, cash and modified accrual based budgeting are the norm. Hence, public budgeting is concerned with the investment itself and the principal on the debt issue as well, and not simply the returns on the investment and interest cost of the debt. Whether that has implications for the cost-effectiveness of POBs is left for another time.

An Illustration

The State of Illinois borrowed $10 billion in 2003 and deposited nearly $1.4 billion into its State Employees' Retirement System (SERS).[7] The debt was issued with a net interest cost of 5.04 percent, and the pension fund's expected return on investment is 8.5 percent.[8] The net return to the POB issue, based on equation 3, is:

$$E(R_i) = E(R_1) - r_b = 8.5\% - 5.04\% = 3.46\%$$

In this example, budget managers would likely analyze the POB issue and conclude that the POB will save taxpayers money since the expected return on equity is nearly 350 basis points higher than the cost of the debt, thereby reducing pension expenditures by funding the system's liabilities. A more accurate analysis of the transaction from the budget manager's perspective might be that failing to fund the pension expenditure at all would essentially cost the state the lost expected earnings on these investments, or 8.5 percent. By issuing a POB at approximately 5.04 percent, the state has managed a "cost of capital" arbitrage.

Both the pension holiday and POB budget gimmicks are the result of short-term financial planning inherent in the public budget process. As described by Bahl and Duncombe (1992), public budgeting tends to lack long-range economic planning and tends to limit forecasting to one year.

The attraction and use of POBs, though, are not just a function of short-term public budgeting. It is also the result of the current actuarial model, in which expected future returns are equated with certain actual returns. By allowing current taxpayers to equate expected returns

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[7] Approximately $6.7 billion was deposited into other pension systems, while $1.9 billion was used in the annual operating budget.
[8] From *Comprehensive Annual Report for the Fiscal Year Ended June 30, 2003, of the Illinois State Employees' Retirement System.*

with actual realized returns, current taxpayers get the advantage of a higher discount rate, which leads to a lower pension expenditure than they would enjoy if discounted at a risk-free rate. The issuers of the POB are essentially capturing the risk premium of equity investing before the fact, passing the risk (and, hence, cost) onto future taxpayers.

The Risks of Pension Obligation Bonds and the Current Actuarial Model

Proponents of market valuation of pension liabilities point out that using an expected return as a discount rate transfers risk from the current generation to future generations. Gold (2003) argues that since pension liabilities are certain, they should be valued by a riskless (that is, certain) reference portfolio – ideally the term structure of Treasury bond interest rates. To do otherwise is to transfer risk and cost from the current generation to future generations without exception.

By permitting current taxpayers to equate the higher <u>expected</u> return of equities compared to the risk-free rate as equivalent to a *realized* return, current taxpayers capture the risk premia of future taxpayers without bearing any of the risk. In fact, future taxpayers cannot move to a risk-free portfolio and maintain full funding in the pension system without increased infusions of resources (presumably from increased taxes or shifting money from elsewhere, resulting in decreased services). The difference between the expected equity return and the risk-free rate has been captured by current taxpayers (presumably through lower taxes or increased other services).

Applying this framework to the usage of pension obligation bonds reveals that POBs are "actuarial arbitrage" opportunities only and actually impose costs on the issuing governments. Assume that the issuing government takes the bond proceeds and invests in risk-free Treasury bills. Since the POB was issued at a taxable rate, the risk-free return on these Treasury bills will be lower than the cost of debt. The difference is a cost to the issuing government since it is a loss.

Because of this cost, governments do not invest POB proceeds in risk-free Treasuries; instead, they invest in higher yielding securities. It is evident, however, that the cost does not go away by investing in these higher yielding securities. The swap from the risk-free Treasuries to

the riskier assets has no economic value. If the pension fund uses the POB proceeds to purchase $1,000 of equities or $1,000 of Treasury bills, the pension fund still has $1,000 of assets. Each asset is priced as the present value of its expected future cash flows, so the discount rates used equalize the present value on a risk-adjusted basis. One may rationally expect the equity investment to grow more than a Treasury bill investment, but there is no certainty that it will. This uncertainty is the very definition of risk. Yet the actuarial model requires that the pension liability be discounted as if these future expected equity premia are certain and riskless.

Besides increasing risk by switching into the riskier assets, the cost still exists – for whether the pension fund invests in risk-free or risky assets makes no difference. It simply reflects a tradeoff of the market and the plan bears increased risk for expected higher returns. In other words, there is no economic difference for the pension plan between investing in Treasuries or equities because the market adjusts each asset for risk. Equities yield more than Treasuries because one must bear more risk. "Borrowing at above-Treasury rates (and incurring issuance costs) to invest in Treasuries is clearly a negative-value transaction" (Bader and Gold 2002, 9). But, this is exactly what governments that issue POBs are doing since the swap from Treasuries to equity has no value. The cost to the issuing government has not disappeared. Instead, the POB has increased risk and cost the government simultaneously. It has allowed current taxpayers to capture future risk premiums without compensating the future taxpayers. As Bader and Gold (2002) note, it is impossible for future taxpayers to move to a risk-free position without additional cost.

Finally, it is important to note that governments do not simply use POBs to correct past pension shortfalls. Because of the short-term nature of the public budget, POBs are sometimes used to substitute for current expenditures. In Gold's (2003) theoretical model, the implicit

assumption is that all POB proceeds are used to fund pension shortfalls accumulated over time. Besides transaction costs (which are not nonexistent), POBs have been used to substitute for current expenditures as well. Illinois used roughly $1.9 billion of its $10 billion 2003 POB issue to cover current annual pension expenditures.[9] Current taxpayers not only reduced their current costs (by shifting costs to future taxpayers) by the $1.9 billion diverted to other government spending, they also shifted risk to future taxpayers by utilizing a POB in the first place. Miami, Fla. also devoted a share of its $72 million POB in 1995 to covering current pension expenditures (Ives 2006).

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[9] See the state of Illinois's FY2003 Comprehensive Annual Financial Report, p. 1- 7, or the FY2004 Comprehensive Annual Financial Report, p. 1 – 6. Both are available at *http://www.ioc.state.il.us/library/cr/cfm*.

Quantifying the Cost of Using POBs

Several cost estimations for POBs could (and should) be quantified to help concretize the damage POBs do to issuing governments. For example, one could estimate the present value of lost investment income by the pension fund for those governments who used POBs to substitute for current expenditures; also, one could examine the spread between the expected return of the POB proceeds and the risk-free rate to determine how much future risk premia is being captured by current taxpayers at the expense of future taxpayers.

The current analysis seeks to estimate the amount of risk and cost transferred from governments issuing POBs to future taxpayers based on the difference between a risk-free Treasury rate and the yield on taxable POB issues; this difference represents the amount of loss incurred by the debt issuing sponsor government by using POBs rather than funding pension expenditures with free (not leveraged) resources. By focusing on this single cost, I choose to concentrate on the costs incurred by and to the operating budget since the additional interest cost on the taxable POB debt is a cost to the operating budget. The other costs identified above relate to costs of the pension system (which, admittedly, will eventually affect the operating budget). But this cost attributable to the fallacious "actuarial arbitrage" is a real cost to the operating budgets of governments issuing POBs.

In order to estimate the amount of risk transferred from governments issuing POBs to future taxpayers, the net interest cost (NIC)[10] for each POB issue was calculated. The NIC calculation was then calculated again using the appropriate risk-free interest rate while holding all other factors constant, such as maturity, coupon rate, etc. This risk-free NIC represents an

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[10] NIC equals the total interest of a debt issue plus (minus) any discount (premium) on the issue divided by the issue's bond year dollars (the amount of principal).

estimated tax-exempt NIC;[11] in fact, since many tax-exempt interest costs are less than the risk-free rate, this estimate of tax-exempt NIC may be considered conservative.

The difference between the actual NIC and the estimated tax-exempt NIC multiplied by the face value represents the risk transferred to future taxpayers annually. Since this difference represents the annual risk transfer, I then calculated the present values of these risk transfers. A range of present values was calculated: one using the risk-free discount rate and another using an 8 percent discount rate.[12] The final formula that defines this analysis is:

$$\text{Cost} = \int_0^M (R_a - R_f * IssueAmount) e^{-it} dt \tag{2}$$

where M is the time until maturity, R_a is the actual NIC of the bond issue, R_f is the risk-free equivalent NIC of the bond issue, and i is the discount rate (alternatively, either risk-free or 8 percent). Equation 2 is the present value of the continuous annual loss of the POB relative to the risk-free equivalent. This difference represents the loss of investing POBs – which are issued as taxable – in risk-free Treasury bills (or equities, since the swap has no value). This cost is also a shift of risk to future taxpayers since it is assumed that this loss needs to be made up in the future.

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[11] An alternative risk-free rate is the Treasury spot rate. Since I am trying to proxy for the interest cost on tax-exempt municipal debt, I chose the NIC method since, by and large, municipal debt is not issued without coupons, as implied by the spot rate.

[12] Eight percent is the median expected return in public pension systems according to the 2007 Public Fund Survey administered by the National Association of State Retirement Administrators.

Data

Data were obtained from the Federal Reserve on market yields of U.S. Treasury securities. Daily yields were obtained for three-month, six-month, one-year, two-year, three-year, five-year, seven-year, 10-year, 20-year and 30-year constant maturities. The 30-year Treasury was discontinued on Feb. 18, 2002, and then reintroduced on Feb. 9, 2006. From Feb. 18, 2002, through Feb. 8, 2006, the U.S. Treasury Department published a factor for adjusting the daily nominal 20-year constant maturity in order to estimate a 30-year nominal rate. Therefore, the partial 30-year Treasury series was imputed, creating a complete time series.

The constant maturity series from the Federal Reserve are designed for investors to compare Treasury yields against other securities of similar maturity. It was necessary to utilize all 10 Treasury yield series in order to adjust for different lifespans of POBs issued. Simply using a three-month Treasury bill as the risk-free rate, for example, would bias the results since, by definition, the three-month yield will be lower than the 30-year yield, assuming a normal (not inverted) yield curve; not accounting for this time to maturity would inflate the intertemporal risk assumed by government. In other words, the multiple series are meant to mimic the term structure of interest rates.

Data on all taxable pension obligation bonds issued by governments since the passage of TRA86 through Dec. 31, 2007, were obtained from Bloomberg's online service. Tax-exempt pension obligation bond issues were excluded from this analysis.[13] Complete data on 277 pension obligation bonds were obtained. The data collected included the issuing government, the

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[13] Excluding tax-exempt issues had the effect of eliminating seven POB issues by Ohio municipalities. In the 1997 United States Court of Appeals case *City of Columbus, Ohio v. Commissioner of Internal Revenue Service*, the Court found that the debt issues were tax-exempt since the debt was incurred prior to TRA86. Therefore, the bonds did not qualify as arbitrage bonds. I am grateful to Barry Keefe and Philip Calabrese at Squire Sanders and Dempsey, LLP for their legal explanation. Therefore, while Ohio municipalities have outstanding POB issues, they are tax-exempt debt and, hence, not included in this analysis.

bond yield at issue, the date of issue, the maturity date, the maturity amount, the size of the bond issue, and the coupon rate. The data cover approximately $42 billion of POB issues.

Since the bond data from Bloomberg are broken into individual CUSIPs, each CUSIP has a unique maturity date that can be linked to the appropriate risk-free Treasury yield. For maturity times that fell between the Federal Reserve increments, rates were interpolated following the technique in PSA The Bond Market Trade Association (1990).[14]

Applying the Risk Transfer Estimate to One Bond Issue

Returning to the previous illustration of the state of Illinois POB, it is possible to examine the risk transfer involved in the government's usage of a POB. The state's bond issue (dated June 12, 2003) had an actual NIC of 5.04 percent; the risk-free Treasury rate for a similar debt instrument (same maturity, issued at par, etc.) issued on the same date would have a NIC of 4.30 percent.

This POB by the state of Illinois allowed current taxpayers to capture 74 basis points— the difference between the actual and the risk-free NIC—of risk premia annually. The present value of this cost is estimated between approximately $833.4 million (if measured using an 8 percent discount rate)[15] and $1.2 billion (if measured using the risk-free discount rate of 4.3 percent).[16]

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[14] Found specifically on pages 177-179 in *Fundamentals of Municipal Bonds, 4th Edition.*
[15] Calculated as $i = 8\%$, $n = 30$ years, *pmt* = 0.74%*$10 billion, CPT PV = $833,353,031.
[16] Calculated as $i = 4.3\%$, $n = 30$ years, *pmt* = 0.74%*$10 billion, CPT PV = $1,234,358,354.

Total Cost Estimate

Applying this methodology, it is estimated that the usage of POBs has transferred between $2.8 billion (using the 8 percent expected return discount rate) and $3.9 billion (using the risk-free equivalent rate) from future to current taxpayers, or roughly 7 percent to 9 percent of the total face value of all POBs issued. This significant cost, it should be remembered, excludes the risk transferred simply by valuing the initial pension underfunding itself by the expected return rather than a market risk-free rate. This analysis is an important reminder that POBs are not costless solutions to government financial difficulties. Instead, POBs bring additional cost and risk into government financial decision-making. Additionally, governments cannot bear an infinite level of risk. By assuming risk in one area, governments may be unable to assume risk in another area. Programs or policies that could transform persistently stubborn areas of public concern—such as health care, poverty or education—may be deferred because a government cannot bear additional future uncertainty about its finances. The usage of POBs cannot be ignored as a source of "using up" a government's acceptable level of risk.

Just as POBs are not truly a national phenomenon and are instead limited to a few states, this risk transfer is similarly concentrated. Approximately 84 percent of the total risk transfer is concentrated within five states and subnational governments within these states: California, Illinois, New Jersey, Oregon and Pennsylvania.

TABLE 1
Risk Transferred by and Within States Through Usage of POBs
1993 – 2007

State	Dollar Value of POBs Issued by State or Governments within State	Risk Transfer Range*
California	$11,555,165,026	$784,356,438 - $1,010,630,373
Colorado	$384,167,521	$19,287,201 - $23,363,304
Connecticut	$561,715,000	$90,021,878 - $112,434,061
Florida	$258,914,759	$17,627,507 - $23,005,371
Iowa	$850,000	$71,771 - $87,118
Idaho	$4,365,000	$302,259 - $364,080
Illinois	$10,092,586,511	$839,162,265 - $1,242,265,794
Indiana	$141,560,000	$9,897,093 - $12,459,386
Kansas	$509,113,000	$42,303,134 - $60,286,262
Kentucky	$28,215,000	$523,953 - $646,224
Louisiana	$220,730,000	$23,592,255 - $30,497,395
Massachusetts	$322,494,365	$33,341,066 - $44,909,517
Maine	$134,185,000	$1,935,460 - $2,475,177
Michigan	$1,996,985,000	$105,882,991 - $138,855,986
Minnesota	$91,350,000	$5,294,395 - $6,735,870
Missouri	$28,695,000	$1,666,226 - $1,892,551
Mississippi	$49,790,000	$1,396,925 - $1,542,044
Nebraska	$1,635,000	$110,884 - $118,280
New Hampshire	$60,790,000	$9,478,240 - $13,354,091
New Jersey	$4,670,212,380	$266,255,250 - $397,733,338
New York	$1,205,946,185	$33,452,288 - $36,920,140
Oregon	$4,578,193,129	$251,073,562 - $328,839,083
Pennsylvania	$2,266,643,211	$193,791,934 - $288,566,682
Rhode Island	$90,000,000	$7,022,017 - $9,049,817
Tennessee	$83,500,000	$8,458,578 - $11,021,459
Texas	$712,612,609	$37,035,343 - $57,528,926
Wisconsin	$1,976,395,000	$57,304,122 - $99,758,019
Total	$42,026,808,696	$2,781,175,856 - $3,880,656,810

* The range spans the median assumed rate of investment returns for public pension plans – 8% - to the estimated risk-free discount rate, as described in the data section.

These risk transfers are also problematic from an equity perspective. Not only did current taxpayers reap a windfall from future taxpayers when the POBs were issued, but future taxpayers also include those citizens that migrate to and within these states from other jurisdictions. Since these losses are borne by subnational governments (and taxpayers), mobile citizens may be able to avoid these losses, leaving the immobile to bear the financial burden.

Discussion and Policy Recommendations

Given the intergenerational risk and cost transfer imposed by POBs by current taxpayers on future taxpayers, what policies exist that can mitigate the harmful effects of POBs for those required to bear the costs? Obviously, requiring public budgets to be balanced on an accrual basis would remove the incentive to issue POBs as a budget balancing technique (since they would not be recognized as revenues), but this option is unlikely given the lack of budgetary oversight across governments. Similarly, requiring public pension liabilities to be discounted by a market value rate would remove the incentive as well since the "actuarial arbitrage" opportunity would cease (since the market value rate would be lower than the taxable POB rate). This option has been the focus of intense debate as of late and seems unlikely to resolve itself anytime soon.

A compromise option does exist. The GASB essentially defers to the Actuarial Standards Board (ASB) in regards to the economic assumptions used in measuring pension liabilities. As Ives (2006) notes in regard to the GASB: "the investment return assumption should be based on an estimated long-term investment yield for the plan, with consideration given to the nature and mix of current and expected plan investments and the basis used to determine the actuarial value of assets."[17] While the sponsoring government and the pension plan are legally separate entities, actuaries and government officials ought to recognize that *how* pension systems are funded should also be reflected in their valuation, since it affects the pension fund's yield.

Pension assets financed by debt should not be valued as being indistinguishable from pension assets financed through equity (for example, tax revenue). The expected long-term investment return for assets financed with debt is not the same as the expected long-term

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[17] GASB COD P20.107c.

investment return for assets financed with free revenue. In fact, the expected and actual returns are net of the cost of the POB. This is clear in equation 1. Given this reality, consideration should be given to allow a blended discount rate that incorporates the real return to assets financed through debt. In particular, the expected return on investments used to discount pension liabilities can be adjusted to account for the debt issued to fund the assets. For example, the Illinois State Employee Retirement System (SERS) received nearly $1.4 billion of the $10 billion 2003 POB issued by the state; this amount was added to an existing portfolio of $7.5 billion, representing approximately 18.5 percent of the portfolio's current value.[18] The blended discount rate in this example would balance the 8.5 expected return assumption with the expected return of the assets financed by the POB, or:

$$\text{Blended Rate} = (0.185)(8.5\%\text{-}5.04\%) + (0.815)(8.5\%) = 7.57\% \tag{3}$$

This policy option would give governments strong motivation not to use POBs and fund pension systems in a more intergenerationally equitable manner by not transferring risks and costs to future taxpayers. This option essentially removes the perceived short-term gains of using POBs. Further, the GASB currently requires governments to use a blended discount rate in the valuation of Other Postemployment Benefits (OPEB) liabilities, in which funded OPEB liabilities are valued differently than unfunded liabilities. The blended rate option presented here, then, has some basis in current governmental financial reporting requirements while removing the incentives to engage in damaging financial behavior.

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[18] From *Comprehensive Annual Report for the Fiscal Year Ended June 30, 2003, of the Illinois State Employees' Retirement System.*

Conclusion

Public budgeting is the centerpiece of governmental financial management. Unfortunately, the current state of public budgeting discounts the future *by definition* since it focuses only on the short-term and uses a cash or modified accrual basis of reporting. This short-term focus leads governments to engage in fiscally damaging behavior, such as the issuance of pension obligation bonds that transfer risk to future generations with no compensation for this risk transfer. This risk transfer is essentially hidden by a shortcoming in the actuarial model that requires pension liabilities be discounted based on the assumed rate of investment return rather than a certain market value rate.

The debates between actuaries and financial economists about proper measurement of pension liabilities can seem unimportant or academic, especially to those tasked with managing public budgets. Yet, for students of public administration, the debate actually leads to an important question: are we giving public budget managers the information they need to make informed financial decisions that are equitable and efficient?

The current budgetary model focused on current resources is clearly problematic, since it leads to obvious financial planning shortcomings. But the use of the investment return assumption as discount rate can actually induce a public budget manager to engage in behavior (such as issuing a POB) that is damaging long-term, yet allows the budget manager to believe he or she is actually helping the subnational government and taxpayers. Clearly, this reflects a lack of information for making informed decisions, and leads to the recommendation of a blended discount rate for those governmental entities that issue POBs. Such a blended rate would alter the information given to public budget managers in such a way as to more accurately (although still imperfectly) reflect the true market risks of such transactions, but also reduce the incentive to

engage in such harmful behavior.

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