Public Pensions: A Fiscal Imperative

71st Annual Meeting of the Southern Legislative Conference
Council of State Governments

Fiscal Affairs & Government Operations Committee Session

Biloxi, MS

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Outline

• Measuring pension-related fiscal stress
• National and regional picture
• Reaching for yield, and potential consequences
• Policy changes
• Ensuring funding security

Questions and discussion along the way
Why it’s so hard to assess and compare pension fiscal stress

1. Plans report liabilities on assumption that they will be successful investors
   a) Maybe yes, maybe no. You tell me how the stock market will do, I’ll tell you magnitude of pension fiscal stress.

2. Actuarial contributions are far lower than they would be if plans did not assume successful investing

3. Actuarial contributions often stretch out repayments of unfunded liabilities over LONG periods

4. Some governments underpay actuarial contributions

5. Size of liabilities and payments relative to economy and budget are important – not just funded ratio.

6. Wide variation on these key characteristics
Some of the numbers that follow address these issues


2. BEA/FRB generally use a 5% “discount rate” for recent-year estimates. (Think of it as sort of like assuming a 5% investment return, although it’s not quite the same thing.) There are other, smaller, differences from actuaries’ numbers.

3. This produces higher estimates of liabilities and of needed contributions than actuaries produce. Differences are big. It is close to what many economists think and to what Moody’s does. Some consider it still too generous.

4. Table and graph notes make clear when I use these estimates as opposed to actuaries’ numbers.
National and regional picture
Employer contributions are up substantially

• Up $155 per capita 2007 to 2016, adjusted for inflation

• Up $55 billion, inflation-adjusted

• SLG taxes grew $219b same period, inflation-adjusted

• Great variation around the country
Employer contribution increases generally have been smaller in southern states.
Employer contributions in southern states

Employer contributions per capita, in 2016 dollars

<table>
<thead>
<tr>
<th></th>
<th>2007*</th>
<th>2016</th>
<th>$ change</th>
<th>% change</th>
<th>2016 contribution as % of US</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>$281</td>
<td>$435</td>
<td>$155</td>
<td>55%</td>
<td>100%</td>
</tr>
<tr>
<td>Alabama</td>
<td>214</td>
<td>257</td>
<td>43</td>
<td>20%</td>
<td>59%</td>
</tr>
<tr>
<td>Arkansas</td>
<td>238</td>
<td>283</td>
<td>45</td>
<td>19%</td>
<td>65%</td>
</tr>
<tr>
<td>Florida</td>
<td>222</td>
<td>199</td>
<td>(22)</td>
<td>-10%</td>
<td>46%</td>
</tr>
<tr>
<td>Georgia</td>
<td>182</td>
<td>283</td>
<td>102</td>
<td>56%</td>
<td>65%</td>
</tr>
<tr>
<td>Kentucky</td>
<td>204</td>
<td>355</td>
<td>151</td>
<td>74%</td>
<td>82%</td>
</tr>
<tr>
<td>Louisiana</td>
<td>413</td>
<td>575</td>
<td>162</td>
<td>39%</td>
<td>132%</td>
</tr>
<tr>
<td>Missouri</td>
<td>257</td>
<td>408</td>
<td>150</td>
<td>58%</td>
<td>94%</td>
</tr>
<tr>
<td>Mississippi</td>
<td>248</td>
<td>353</td>
<td>105</td>
<td>42%</td>
<td>81%</td>
</tr>
<tr>
<td>North Carolina</td>
<td>81</td>
<td>174</td>
<td>94</td>
<td>116%</td>
<td>40%</td>
</tr>
<tr>
<td>Oklahoma</td>
<td>302</td>
<td>345</td>
<td>43</td>
<td>14%</td>
<td>79%</td>
</tr>
<tr>
<td>South Carolina</td>
<td>199</td>
<td>258</td>
<td>60</td>
<td>30%</td>
<td>59%</td>
</tr>
<tr>
<td>Tennessee</td>
<td>186</td>
<td>213</td>
<td>27</td>
<td>14%</td>
<td>49%</td>
</tr>
<tr>
<td>Texas</td>
<td>173</td>
<td>234</td>
<td>61</td>
<td>35%</td>
<td>54%</td>
</tr>
<tr>
<td>Virginia</td>
<td>308</td>
<td>376</td>
<td>68</td>
<td>22%</td>
<td>87%</td>
</tr>
<tr>
<td>West Virginia</td>
<td>326</td>
<td>562</td>
<td>236</td>
<td>72%</td>
<td>129%</td>
</tr>
</tbody>
</table>

Note: *2008 used for West Virginia because 2007 was boosted by pension obligation bonds

Source: Rockefeller Institute analysis of Census Bureau Annual Surveys of Public Retirement Systems. Includes all state and local plans in a state.
Despite contribution increases, aggregate funded ratio has barely budged.

Funded ratio of state and local government defined benefit pension plans

Source: Federal Reserve Board, Financial Accounts of the United States, Table L.120.b
Note: Liabilities are as valued by the Bureau of Economic Analysis, not actuaries.
And unfunded liability remains near record relative to economy

Unfunded liability of state and local government defined benefit pension plans
As percentage of Gross Domestic Product

Source: Federal Reserve Board, Financial Accounts of the United States, Tables L.120.b and F.2
Note: Liabilities are as valued by the Bureau of Economic Analysis, not actuaries.
Unfunded liabilities relative to economy vary greatly. Large in some southern states.
### Unfunded liabilities in southern states

Unfunded liabilities in 2014 as measured by BEA and the FRB

<table>
<thead>
<tr>
<th>State</th>
<th>$ billions</th>
<th>As % of GDP</th>
<th>Per capita</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>$ 1,443.1</td>
<td>8.4%</td>
<td>$ 4,530</td>
</tr>
<tr>
<td>Alabama</td>
<td>17.9</td>
<td>9.1%</td>
<td>3,702</td>
</tr>
<tr>
<td>Arkansas</td>
<td>4.7</td>
<td>3.9%</td>
<td>1,597</td>
</tr>
<tr>
<td>Florida</td>
<td>30.1</td>
<td>3.6%</td>
<td>1,515</td>
</tr>
<tr>
<td>Georgia</td>
<td>44.0</td>
<td>9.3%</td>
<td>4,365</td>
</tr>
<tr>
<td>Kentucky</td>
<td>35.0</td>
<td>18.5%</td>
<td>7,924</td>
</tr>
<tr>
<td>Louisiana</td>
<td>30.4</td>
<td>12.4%</td>
<td>6,539</td>
</tr>
<tr>
<td>Missouri</td>
<td>27.6</td>
<td>9.8%</td>
<td>4,560</td>
</tr>
<tr>
<td>Mississippi</td>
<td>16.6</td>
<td>15.9%</td>
<td>5,563</td>
</tr>
<tr>
<td>North Carolina</td>
<td>12.2</td>
<td>2.6%</td>
<td>1,224</td>
</tr>
<tr>
<td>Oklahoma</td>
<td>10.4</td>
<td>5.4%</td>
<td>2,671</td>
</tr>
<tr>
<td>South Carolina</td>
<td>23.4</td>
<td>12.3%</td>
<td>4,847</td>
</tr>
<tr>
<td>Tennessee</td>
<td>4.4</td>
<td>1.5%</td>
<td>679</td>
</tr>
<tr>
<td>Texas</td>
<td>32.4</td>
<td>2.0%</td>
<td>1,201</td>
</tr>
<tr>
<td>Virginia</td>
<td>25.3</td>
<td>5.5%</td>
<td>3,044</td>
</tr>
<tr>
<td>West Virginia</td>
<td>4.1</td>
<td>5.5%</td>
<td>2,229</td>
</tr>
</tbody>
</table>

Includes all state and local plans in a state.
Reactions?

• Is this consistent with how you think of your systems? In some states the unfunded liabilities seem quite small relative to the economy.

• Is legislative interest in pensions and in pension reform consistent with these numbers – e.g., larger in the states where unfunded liabilities are a greater share of the economy?
Contributions would be MUCH higher still if plans lowered discount rates.

State and local government inflation-adjusted pension contributions

Versus contributions needed to keep unfunded liabilities from growing, if little risk taken

- 'Little-risk' contributions: Employer normal cost + interest on unfunded liability, as valued by U.S. Bureau of Economic Analysis (NIPA Table 7.24)
- Actual contributions also NIPA Table 7.24
- Adjusted for inflation with gross domestic product price index
Employer contributions at 5% discount rate would be MUCH higher, but varies greatly.
### Costs of staying even, based on economic measures

Tread-water cost in 2014, based upon economic concepts, compared to actual contributions

<table>
<thead>
<tr>
<th></th>
<th>Normal cost</th>
<th>Interest on unfunded liability</th>
<th>Normal cost plus interest</th>
<th>Actual contributions</th>
<th>Cost minus contributions</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>$ 562</td>
<td>$ 227</td>
<td>$ 788</td>
<td>$ 382</td>
<td>$ 407</td>
</tr>
<tr>
<td>Alabama</td>
<td>308</td>
<td>185</td>
<td>493</td>
<td>247</td>
<td>247</td>
</tr>
<tr>
<td>Arkansas</td>
<td>361</td>
<td>80</td>
<td>441</td>
<td>288</td>
<td>153</td>
</tr>
<tr>
<td>Florida</td>
<td>311</td>
<td>76</td>
<td>387</td>
<td>200</td>
<td>187</td>
</tr>
<tr>
<td>Georgia</td>
<td>345</td>
<td>218</td>
<td>563</td>
<td>224</td>
<td>339</td>
</tr>
<tr>
<td>Kentucky</td>
<td>408</td>
<td>396</td>
<td>804</td>
<td>314</td>
<td>490</td>
</tr>
<tr>
<td>Louisiana</td>
<td>408</td>
<td>327</td>
<td>735</td>
<td>738</td>
<td>(2)</td>
</tr>
<tr>
<td>Missouri</td>
<td>588</td>
<td>228</td>
<td>816</td>
<td>320</td>
<td>495</td>
</tr>
<tr>
<td>Mississippi</td>
<td>368</td>
<td>278</td>
<td>646</td>
<td>336</td>
<td>310</td>
</tr>
<tr>
<td>North Carolina</td>
<td>418</td>
<td>61</td>
<td>479</td>
<td>167</td>
<td>312</td>
</tr>
<tr>
<td>Oklahoma</td>
<td>378</td>
<td>134</td>
<td>512</td>
<td>313</td>
<td>198</td>
</tr>
<tr>
<td>South Carolina</td>
<td>269</td>
<td>242</td>
<td>512</td>
<td>235</td>
<td>277</td>
</tr>
<tr>
<td>Tennessee</td>
<td>375</td>
<td>34</td>
<td>408</td>
<td>197</td>
<td>211</td>
</tr>
<tr>
<td>Texas</td>
<td>420</td>
<td>60</td>
<td>480</td>
<td>235</td>
<td>245</td>
</tr>
<tr>
<td>Virginia</td>
<td>477</td>
<td>152</td>
<td>629</td>
<td>281</td>
<td>348</td>
</tr>
<tr>
<td>West Virginia</td>
<td>294</td>
<td>111</td>
<td>406</td>
<td>438</td>
<td>(32)</td>
</tr>
</tbody>
</table>

Source: Rockefeller Institute analysis and calculations, based on data from the Bureau of Economic Analysis and the Bureau of the Census. Includes all state and local plans in a state.
That’s probably the direction they’re headed – but very slowly

• Public plans have lowered assumptions over last few years, albeit VERY slightly
• Current assumptions still require substantial investment risk, leading to return volatility and budgetary and plan funding risk.
• Many plans (I think) wish to lower assumptions further. Good for benefit security, but drives contributions up.
• I expect a “show them no good news” approach – lower assumptions whenever returns are better than expected.
• Suggests repeated increases in contributions over the longer term

If investment environment changes – e.g., higher inflation, higher interest rates – then maybe not.
Reactions?

• How much (if at all) have investment return assumptions come down in the plans in your state?
• How much has this affected contributions?
• Do you expect new or further reductions in investment return assumptions?
• For how far into the future?
• If this happens, how will this affect:
  • Other parts of the budget?
  • Political support for pensions, or desire for further changes to benefits or other aspects of pensions?
Reaching for yield, and potential consequences
Public plans have lowered earnings assumptions, but not by much.
Public plans have moved into equity-like higher-risk investments

Equity-like investments as percentage of invested assets
State and local government and private sector defined benefit pension plans

Source: Authors’ analysis of Z.1 Financial Accounts of the United States, Federal Reserve Board, Tables L.118.b, L.120.b, and L.122
Pension fund risk-taking & investment return volatility

• Even if actual returns hit assumed returns over the long run (e.g., if your returns average 7.5% at the end of 30 years), the “path” over time can be a roller coaster. Some paths could result in:
  • Extreme increases or decreases in employer contributions, or
  • Extreme overfunding or underfunding,
    Creating political risks to plan benefits and to budgets

• IF assumption is generally correct, there’s no guarantee that assumption will be hit, even in the long run (e.g., 7.5% might be reasonable, but you might not hit it, even at 30 years). Risks of severe underfunding even if employer pays full actuarially determined contributions

• No guarantee that assumption is correct – could be too high or low (e.g., 7.5% might not even be reasonable).

• Risks and tradeoffs are related to funding policies
The path can be a roller coaster

Employer contributions and funded ratio can be highly variable, even if expected returns are correct on average.

Three individual simulations, all with 7.5% discount rate and 7.5% compound annual returns.

- Deterministic run: constant returns
- Stochastic run: high returns in early years
- Stochastic run: low returns in early years

Employer contribution rate

Funded ratio

Funding policy: 30-year level pct open with 5-year asset smoothing
Employer and fund risks can be quite large if expected returns are too high

- Some current market forecasts suggest that it can be very difficult for public pension funds to achieve their assumed returns in the current market environment. To achieve the assumed return of 7.5%, the pension funds may need to invest in even riskier portfolios.
- We examined (1) “true” return of 6% when assumed is 7.5%, and (2) highly volatile returns (17% “standard deviation”), in comparison to a base case.
Risks are related to funding policies

Risk measures

- **Contribution volatility**: Probability of sharp increase in employer contribution in any 5-year period
- **Risk of severe underfunding**: Probability of funded ratio falling below 40% during first 30 years

The very stretched-out policy of 30-year level percent amortization:

- Attractive to employer: Very low probability that contribution will rise above 10% in a 5-year period
- Has a far greater risk of severe underfunding than other policies.
The trade-off between contribution volatility and the risk of underfunding

- Contribution volatility: Probability of sharp increase in any 5-year period of employer contribution rate
- Risk of underfunding: Probability of funded ratio falling below 40% during first 30 years

Low in both types of risks, but requires significant increases in contributions in short term.
Reactions?

• To what extent is reaching for yield a concern in your state?
  • Are you concerned about risk to pension fund security and potential costs to future taxpayers?
  • Or is the most important issue keeping contribution costs low now, even if that means greater risks?

• To what extent are your states or plans using funding methods that stretch repayments over very long periods? Are changes in funding methods likely?
Policy changes / reactions?

• Since 2007 nearly every state has passed one or more pension policy changes
• What changes or reforms have you adopted in your states?
• What further changes are most likely going forward?
• How will changes affect state and local finances?
• How will they affect beneficiaries?
• How will they affect your competitiveness as an employer?
Ensuring secure funding

• Pay the actuarially determined contribution. Rain or shine. This is crucial for avoiding deep trouble.
• Calculate the actuarially determined contribution conservatively.
  • Short amortization period.
  • Closed period.
  • Don’t smooth assets. Creates tempting opportunity to take risk that others must bear (classic moral hazard).
• Accept lower discount rates and lower risks
• Consider risk sharing.

All of this is difficult: Hard on taxpayers, potentially hard on beneficiaries. Good for plan funding security.
Concluding observations

• Even if plans have some good investment years (and FY 2017 was a good year), pension problems are likely to be with us for a while…

• …if plans gradually lower discount rates, and lower risk, as I expect

• That will raise costs that policymakers must fund, possibly quite dramatically

• But it helps secure benefits and reduces the risk of potentially disastrous results
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