

Measuring the Shortfall in the Public Pensions

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Key Points

- 1) The proper discount rate depends on current market valuations of equities.
- 2) It is appropriate for public pensions to use the expected value of the return on their assets as the discount rate for their liabilities.

Future Stock Returns Depend on Current PE and Projected Profit Growth

- 1) Baker, D., JB DeLong, and PR Krugman, 2005. "Asset Returns and Economic Growth," *Brooking Papers on Economic Activity*.
- 2) Weller, C. and D. Baker, 2005. "Smoothing the Waves of Pension Funding: Could Changes in Funding Rules Help Avoid Cyclical Underfunding," *The Journal of Policy Reform*.

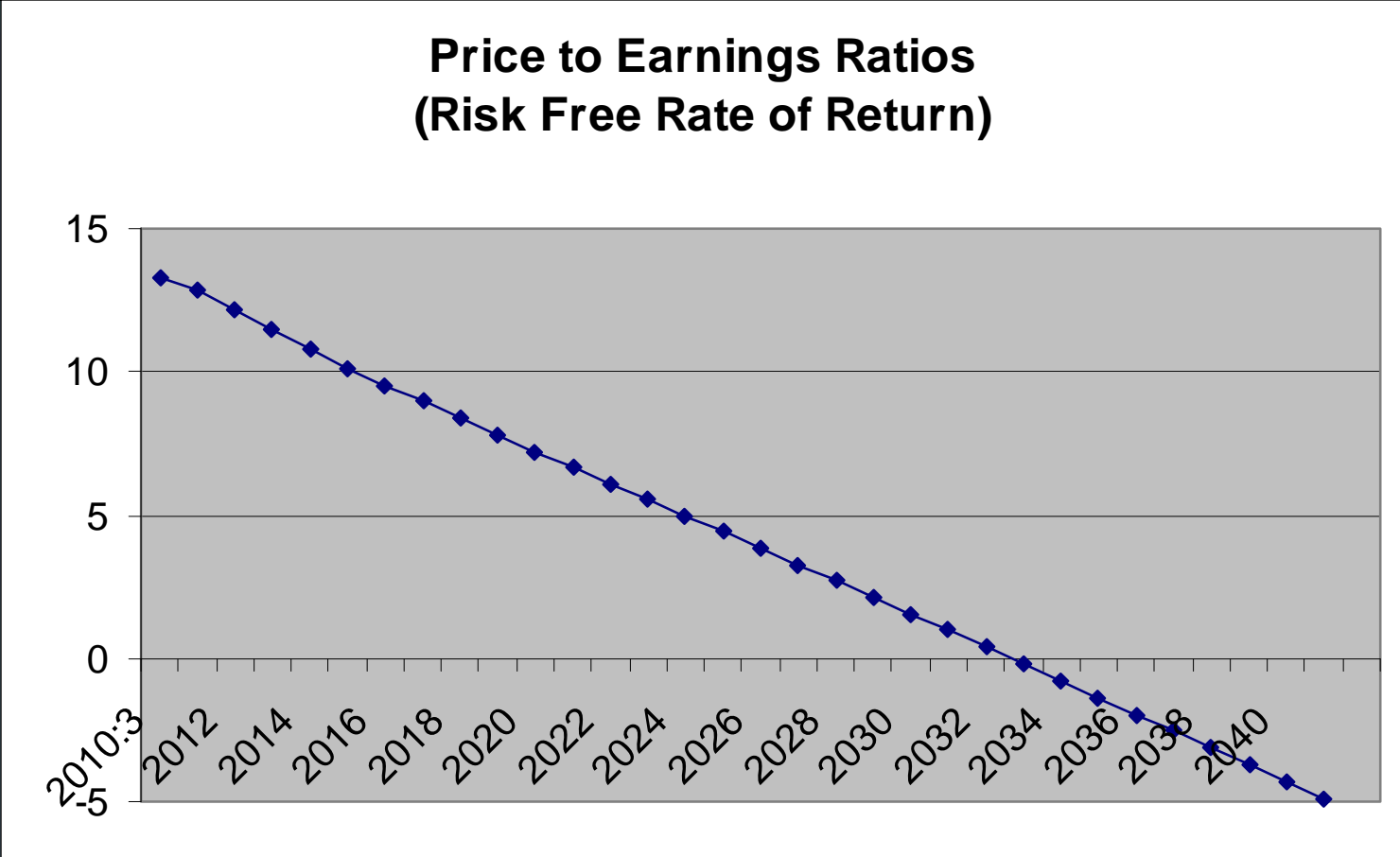
Formulas for Expected Return on Equities

- 1) Assume constant PE, then return equals projected profit growth (economic growth), plus dividend yield (including buybacks).
- 2) Assume reversion to mean PE (@ 15 to 1), then growth plus reversion factor, plus dividend yield
- 3) Current PEs (based on trend earnings) are close to 15 to 1, so mean reversion is not an issue.



Source: BEA, Federal Reserve Board, and author's calculations.

Price to Earnings Ratios (Risk Free Rate of Return)



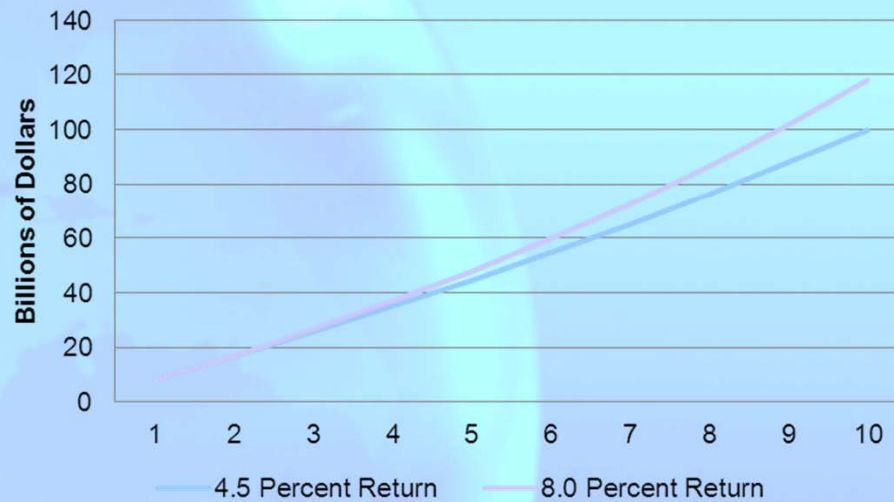
Source: CBO, Federal Reserve Board, and author's calculations.

Consequences of Assuming Risk Free Rate of Return on Equities

- 1) State and local governments end up prepaying compensation – in contrast to any other category of expenditures.
- 2) Risk averse public officials opt to only invest in risk free assets.

Assuming a Lower Than Expected ROR Leads to Prepayment

Pension Accumulation:
Assuming \$8.14 billion annual payment



- 1) Requiring pension fund managers to assume a risk free rate of return on a risky asset will discourage them from holding the asset.
- 2) If pension funds don't hold equities then they will be more expensive for taxpayers.
- 3) The public will be less likely to support DB pension funds.
- 4) Public sector workers will then have DC accounts where individual workers must take risk rather than having it born by infinitely lived governmental entities – transferred risk from the party more able to bear it to the party less able to bear it.

Conclusion

- Return assumptions are reasonable, now that PEs have returned to normal levels.
- It is appropriate for pension funds to assume expected values, only real consequence is conferences like this one.