

The “Rising Tide” of Pension Contributions: How much and when?

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American Academy of Actuaries

■ American Academy of Actuaries

- 17,000-member professional association whose mission is to serve the public and the actuarial profession.
- Assists policymakers on all levels by providing leadership, objective expertise, and actuarial advice on risk and financial security issues.
- Actuaries have extensive experience in dealing with risk management and solvency issues within the financial services industry and have unique qualifications that can aid the discussion of the economic recession.

■ Pension Practice Council

- Provides objective technical expertise to policymakers and regulators on pension and Social Security issues.
- Promotes effective retirement security programs.
- Advances actuarial practice by informing and educating its members on public policy and professionalism issues and current and emerging practices.



Society of Actuaries

- The Society of Actuaries (SOA) is an educational, research and professional organization dedicated to serving the public and Society members.
 - Largest actuarial organization in the world
 - 23,000 actuaries in the United States, Canada and worldwide
 - Vision is for actuaries to be the leading professionals in the measurement and management of risk
 - Key research initiatives: Rapid Retirement Research Initiative, Retirement 20/20, Living to 100, Health Actuarial Research Initiative, Retirement Risk Survey series



Rapid Retirement Research Initiative

- The SOA's Rapid Retirement Research Initiative (RRRI) is intended to provide timely, data-driven research to the public and policy-makers
- Focus on both US and Canada
- Key staff: Joe Silvestri, SOA Retirement Research Actuary



Agenda for Today's Briefing

- Background on the DB System Environment
- Data and Modeling
- The Rising Tide
- What it Means and Potential Implications
- Areas for Future Analysis



Background

- The Pension Protection Act of 2006 (PPA)
- Recession of 2007-08 and Financial Crisis
 - Dismal market returns
 - Significant decline in interest rates
- Temporary Funding Relief
 - IRS Interest Rate Relief
 - The Worker, Retiree and Employer Recovery Act
 - The Pension Relief Act



Data and Modeling

- Pension plan regulatory filings
- The Pension Insurance Modeling System (PIMS)
- Key demographic and economic assumptions determined by the Society of Actuaries (see Appendix)



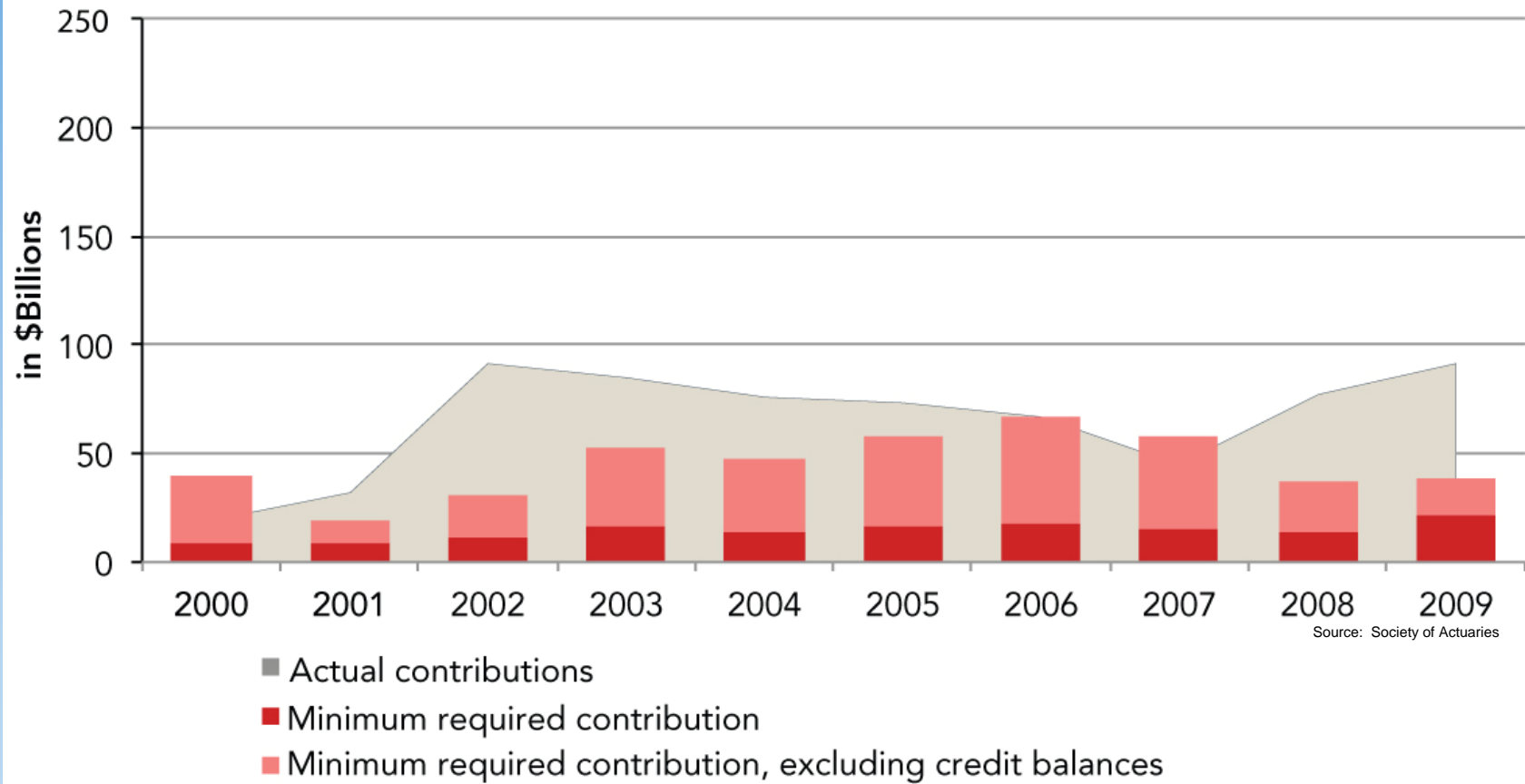
The Rising Tide

- During the ten years ending 2009, actual contributions to the single employer defined benefit system averaged about \$66 billion per year
- Minimum required contributions fluctuated between \$9 billion and \$22 billion over this period
- Excluding the “credit balance,” the minimum required ranged from \$19 billion to \$67 billion over this period
- Actual contributions ranged from \$19 billion in 2000 to \$91 billion in 2002 and 2009



Contribution History: 2000 - 2009

HISTORICAL CONTRIBUTIONS (2000 - 2009)



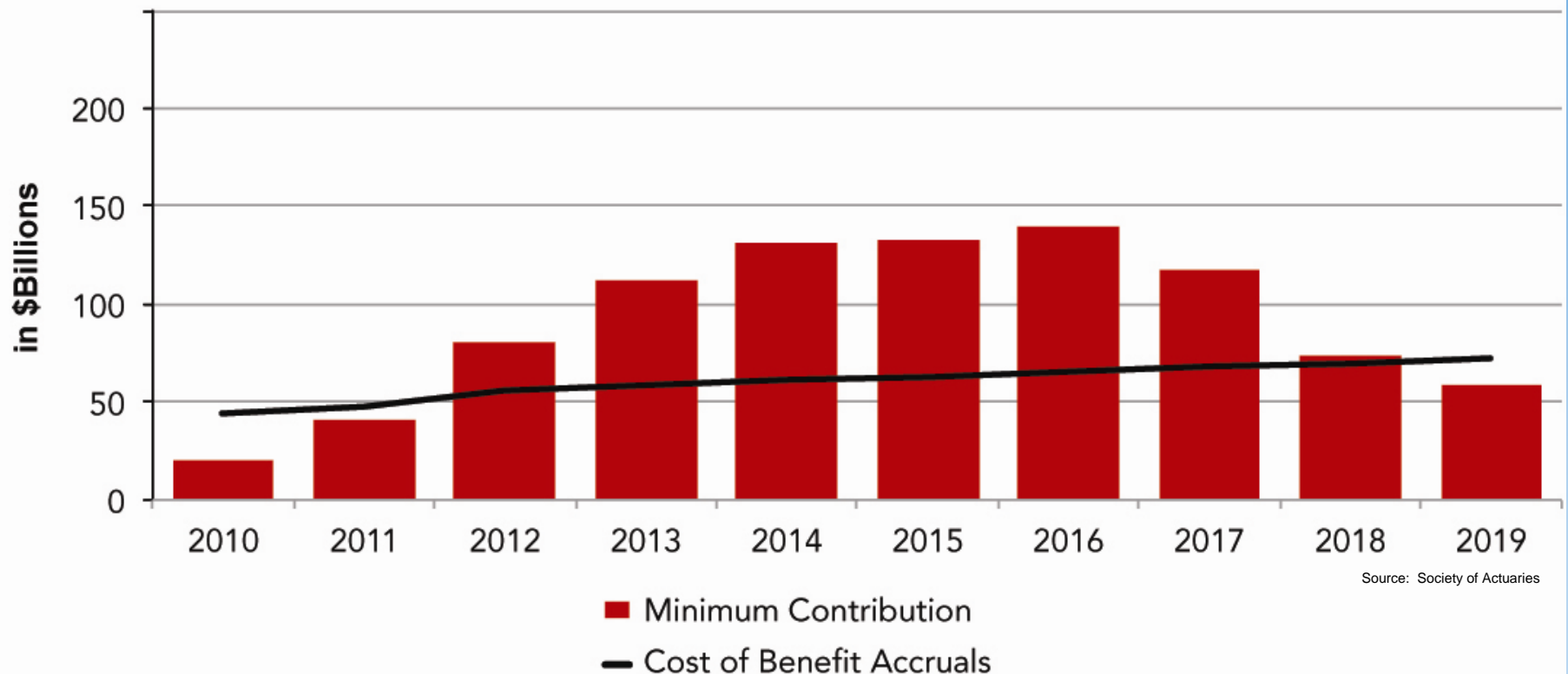
The Rising Tide

- During the ten years beginning 2010, analysis indicates required contributions to average \$90 billion per year
- Report shows actual contributions to exceed the required amounts, particularly in 2010 and 2011
- Assuming contributions at the minimum levels, analysis indicates contribution requirements to peak at about \$140 billion in 2016
- After 2016, projected contributions decline to levels similar to the previous decade



Projected Contribution Requirements

MINIMUM CONTRIBUTION REQUIREMENTS PROJECTED



Sensitivity Analysis

- Projections are based on single set of assumed future outcomes
- To illustrate sensitivity to asset returns, we varied the assumed rate for 2011
 - +19%
 - -18%
- Peak year required contribution ranges from \$96 to \$234 billion

*Actual economic results through September 30
(not reflected in projections or sensitivity analysis)*

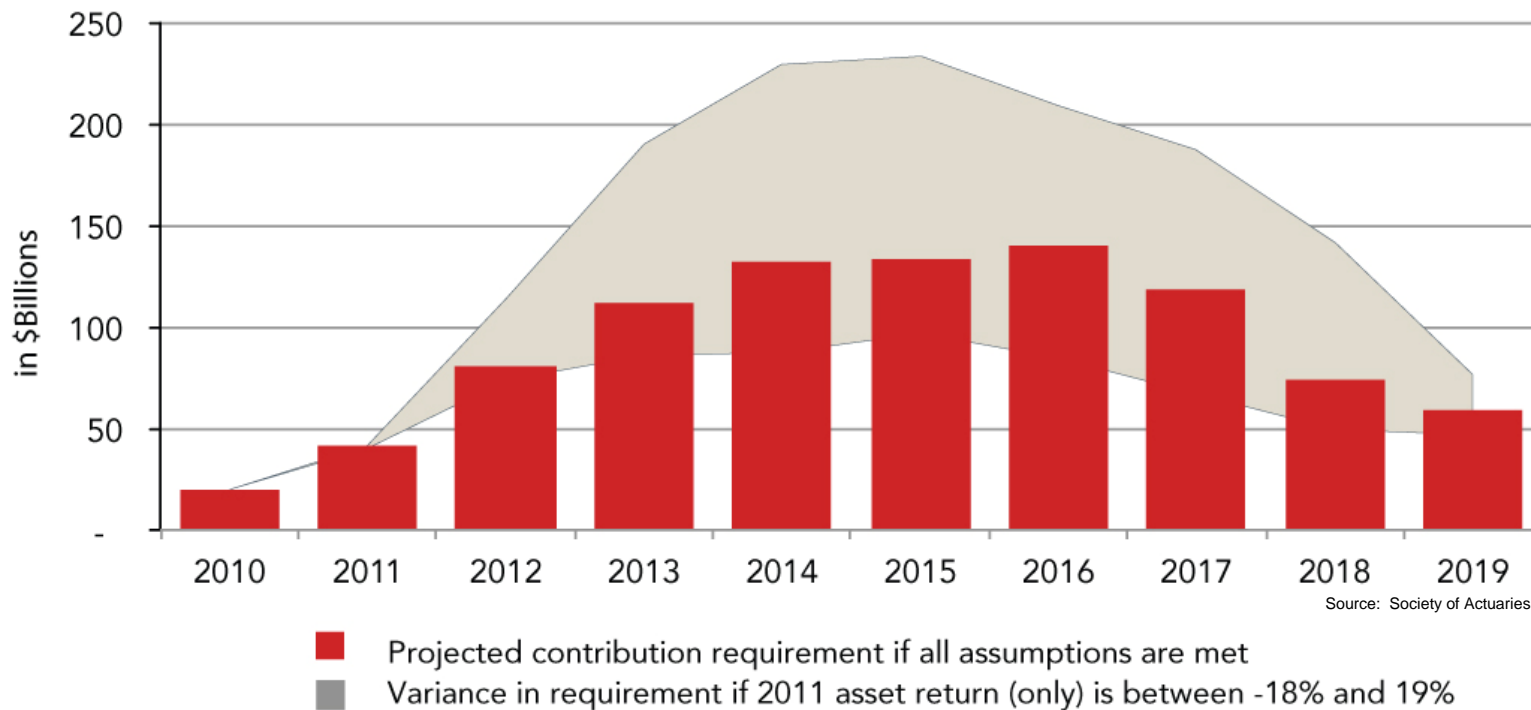
- Investment results: minus 4.5%

- Interest rates: declined about 70 basis points



Sensitivity to 2011 Asset Return

EFFECT OF SINGLE-YEAR ASSET RETURN VARIANCE



What Does It Mean?

- Little effect on corporate earnings
- Large effect on corporate cash
- There are sponsors who are anticipating increase, but magnitude is uncertain
- Degree of stress will differ
- Risk profile of plan sponsors varies
- Effect on plan participants is uncertain



Potential Courses of Action

- Status Quo
- Sponsor Strategy:
 - Fund obligations in advance of requirement and use credit balance
 - Reduce future accruals
 - De-risk plan investments
- Regulator Strategy:
 - Revise the minimum required contribution
 - Encourage de-risking



How Will Sponsors React?

Possible Sponsor Strategies

- Mitigate with existing credit balance
- Increase contributions ahead of tide
- Lower benefit accruals
- De-risk asset allocation (static or dynamic)
- Request relief



Sponsor Strategy: Utilize Existing Credit Balance

- Sponsors with a credit balance can temporarily mitigate increase provided funded ratio exceeds thresholds
- Large contribution requirements may exhaust credit balance before peak contribution years



Sponsor Strategy: Fund Obligations in Advance of Requirement

- Firms with available cash may fund contributions in advance to lessen peaks
- Funding in advance primarily affects timing of contribution requirements, but may lower ultimate requirements if investments do well



Sponsor Strategy: Reduce Benefits

- If cash drain is significant, sponsors may decide to lower pension accruals (if not already frozen)
- Future accruals can be reduced or eliminated (accrued benefits cannot be reduced)
- Cash contributions would be lowered, but still significant increases required to amortize unfunded liabilities
- Possibly offset by replacement plan cost if any
- Expectation of adverse employee reaction



Sponsor Strategy: De-Risking

- Decreasing equity risk can lessen volatility of contributions
- Trade off – Although volatility will decline, level of contributions is likely to increase



Sponsor Strategy: Request Relief

- Sponsors may request hardship relief from IRS
 - Waiver process is not commonly known, generally slow, and seldom used in past due to apparent difficulty to qualify
- Sponsors could possibly seek additional legislative relief



Regulator Strategy: Reduce the Minimum Required Contribution

- Federal rules that determine the minimum required contribution could be modified
- Immediate changes could allow for longer amortization of current shortfalls
- Funding requirement could be made less sensitive to interest rates and equity markets
- This would defer some funding, but increase ultimate requirements
- Less benefit security for participants, more exposure for PBGC



Regulator Strategy Regarding De-Risking

Two approaches:

Encourage de-risking by linking required contribution to measures of risk such as:

- Sponsor financial status or credit rating
- Equity exposure of pension fund
- Maturity level of plan and liabilities

Do not use public policy (laws/regulations) to influence level of risk taking:

- Minimum contribution should not be based on credit risk
- Equity investments may lower pension cost
- Certain industries should not be disadvantaged due to their maturity or other circumstances



Areas for Future Analysis

- Tracking changes to the status of the system
- Investigating the effects of various economic scenarios
- Investigating the effects of different risk management techniques
- Investigating the effects of regulatory changes
- Ideas from the audience?



Questions?



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Appendix—Data Assumptions and Methods

This report shows several deterministic projections of the estimated aggregate minimum funding requirements for the U.S. single-employer defined benefit system, with the intent of developing an understanding of the timing and amount of required contributions. The projections were developed using the Pension Insurance Modeling System (PIMS), originally developed for the PBGC. Starting with data from publicly available regulatory filings, PIMS simulated the demographic and economic experience of 421 single-employer DB plans, representing about half of the benefit obligations of plans insured by the PBGC, using parameters determined by the Society of Actuaries. It then performed actuarial valuations of each plan for each year of the projection period and calculated the resulting minimum required contributions. The results from the sample of 421 plans were then extrapolated to the single-employer universe of plans.

In conducting the projections, the model relied on data supplied by the PBGC as of December 2010, which consisted of selected data from publically available Form 5500 filings made by defined benefit sponsors. The selected data included information about plan demographics, benefit structures, asset values, liabilities and actuarial assumptions for 421 large pension plans. While we cannot verify the accuracy of all the information, the supplied information was reviewed for consistency and reasonability.

PIMS used assumptions to simulate future actuarial valuations and actual future experience. Given the deterministic nature of the projections, the results shown are highly sensitive to key assumptions. Key demographic and economic assumptions made for this analysis are disclosed on the next slide:



Appendix—Data Assumptions and Methods

		Valuation	Experience
Demographic			
Active headcount		Closed group	Constant for ongoing plans
Termination rates		As disclosed on Schedule B/SB	As disclosed on Schedule B/SB
Disability rates		As disclosed on Schedule B/SB	As disclosed on Schedule B/SB
Retirement rates		As disclosed on Schedule B/SB	As disclosed on Schedule B/SB
Mortality rates (pre- and post-retirement)		RP2000 projected 10 years beyond the valuation date, assuming 60/40 male/female population	RP2000 projected to the valuation date, assuming 60/40 male/female population
Economic			
Effective interest rate			
	2009	7.90%	
	2010	5.74%	
	2011+	5.51%	
Asset return			
	2008		-22.66%
	2009		19.43%
	2010		7.89%
	2011+		7.40%
Wage increases (pay-related plans)		3.00% plus a merit increase derived from participant data	4.00%
Benefit increases (non-pay-related plans)		None	4.00%
National average wage increase		4.00%	4.00%
Inflation (consumer price index)		2.30%	2.30%



Appendix—Data Assumptions and Methods

The asset return assumption for years after 2010 was derived from 5,000 asset return scenarios provided by Hewitt EnnisKnupp. (The SOA thanks Hewitt EnnisKnupp and its volunteers for their assistance.) The median geometric average return over the 2011-15 period was 7.40 percent.

The effective interest rate (EIR) assumption for 2011 and beyond was based on the Treasury High Quality Market Corporate Bond Yield Curve for December 2010 and aggregate projected benefit payments for benefits accrued through the 2010 plan year.

No bankruptcies or plan changes (including plan freezes) were assumed during the projection period. The valuation of plans with a fiscal year beginning after June 30 used assumptions for the next calendar year. All participants were assumed to elect a single life annuity form of payment.

Minimum funding requirements were modeled on the provisions in the PPA of 2006, as amended by WRERA. The analysis did not include an assumption about the effect of the PRA of 2010. Relatively few plan sponsors have elected to take advantage of the relief offered by PRA so far, but increased election rates for the 2011 and 2012 plan years may have a noticeable effect on the projections in this report. The model assumed that all sponsors elected to use 24-month smoothing of interest rates and 24-month smoothing of the actuarial value of assets (AVA). The smoothing was modeled by averaging values at the three valuation dates ending with the current valuation date. Prior to averaging, asset values were projected to the current valuation date using the EIR for the intervening periods. Unless otherwise stated in the report, sponsors were assumed to contribute the minimum amount of cash required by the PPA after application of their available credit balance. Actual contributions were used if they were included on a Form 5500 Schedule B/SB filed by Oct. 27, 2010, and exceeded the modeled minimum requirement. All cash flows (contributions attributable to the plan year and benefit payments during the plan year) were assumed to occur at the end of the plan year. The results of each plan year were summed to produce the aggregate result for that year.

To model the universe of single-employer DB plans in the United States, the results generated for each plan in the sample were multiplied by a factor based on the 2008 benefit liabilities (funding targets) for the universe and the sample. Prior to calculating the multipliers, the plans in the sample were categorized by the funded status of the largest plan at its sponsoring firm (327 firms sponsored the 421 plans in the sample). The plans within each category were generally assigned a multiplier that would gross the total liability in that funded status category to the total liability for the corresponding funded status category in the universe.

The historical data for years prior to 2010 was drawn from Form 5500 filing data provided by the PBGC. Plans that were not covered by the PBGC were excluded from the data. Amounts for 2008 and 2009 were estimated due to incomplete data for those plan years.

