SOCIETY OF ACTUARIES®

2019 ANNUAL MEETING & EXHIBIT

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Toronto, Canada

Session 177: Late-Breaking Developments

SOA Antitrust Compliance Guidelines
SOA Presentation Disclaimer

2019 ANNUAL MEETING & EXHIBIT

Late Breaking Developments

SESSION 177: LATE BREAKING DEVELOPMENTS

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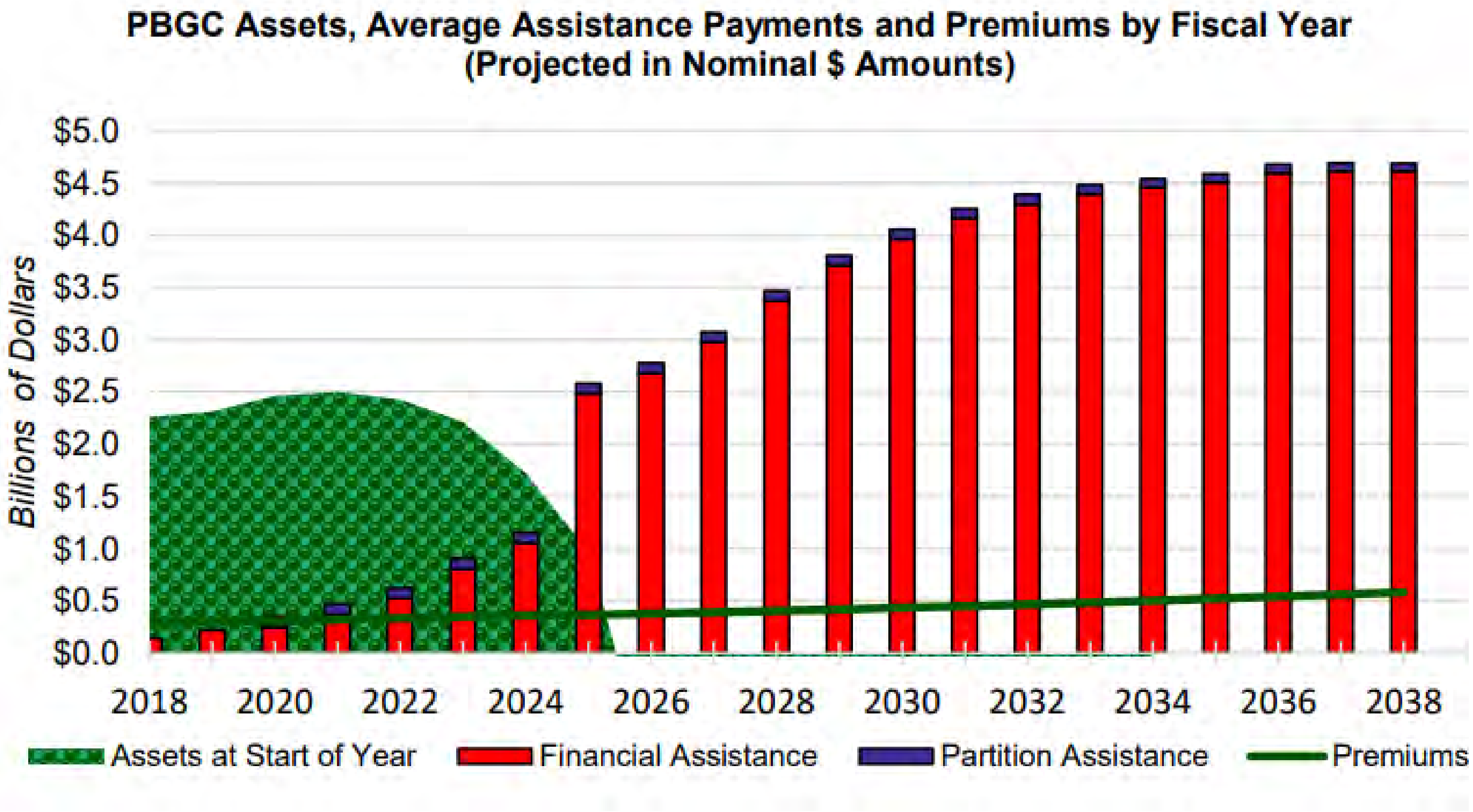
U.S. Multiemployer Developments

PBGC Multiemployer Program

Highlights from PBGC FY 2018 Projections Report

- Multiemployer Program projected to become insolvent around FY 2025
- Projected average 10-year deficit is about $66 billion (discounted present value)
- Slight improvement over FY 2017 projection ($68 billion deficit)
- Still 99% likelihood Multiemployer Program will be insolvent by FY 2025 (or sooner)

PBGC Multiemployer Program



Source: PBGC FY 2018 Projections Report

Background: Multiemployer Pension Reform

“Solutions Not Bailouts”

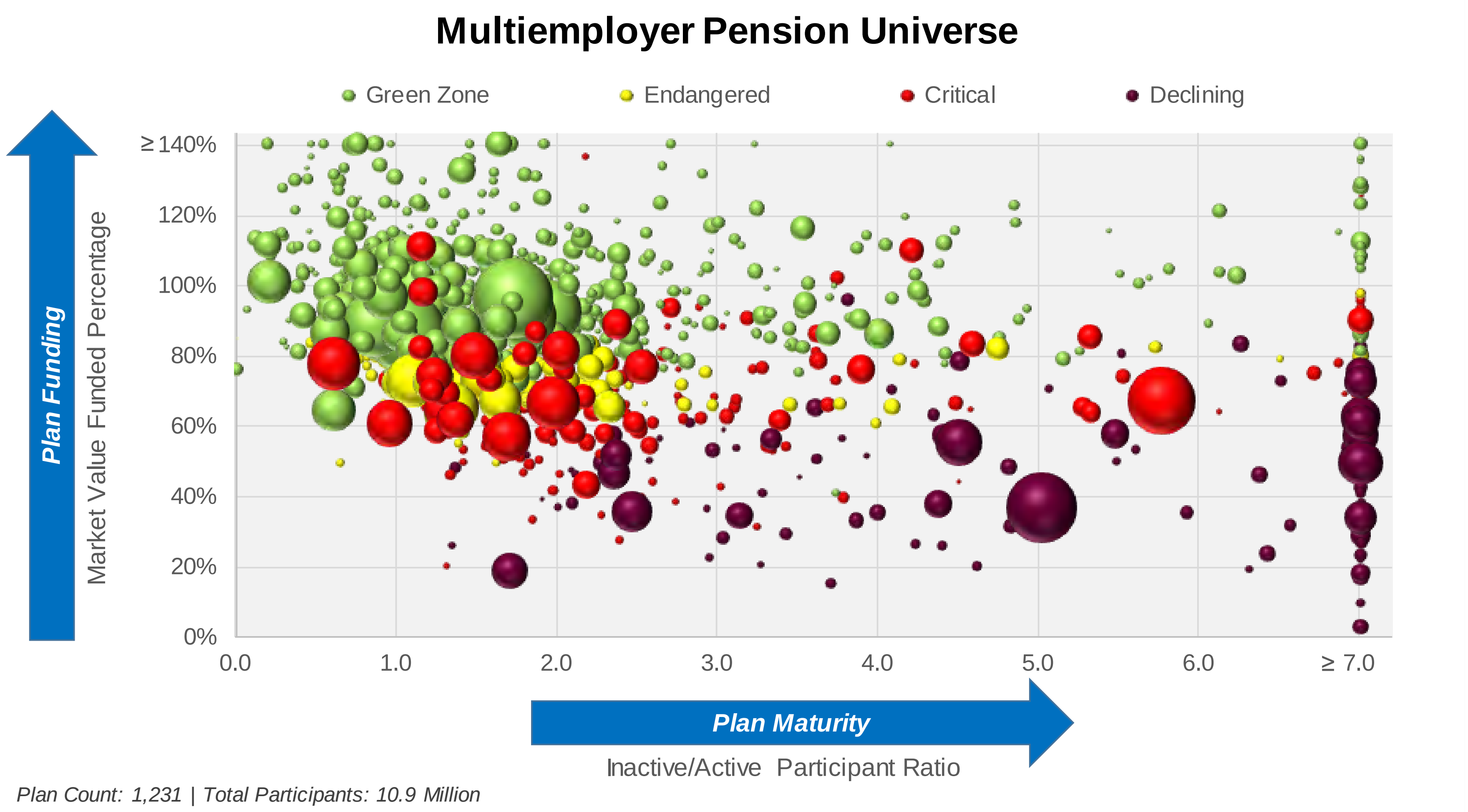
- Recommendations by NCCMP Retirement Security Review Commission
- Report published February 19, 2013
- Three goals:
  - **Preservation:** Proposals to strengthen the current system
  - **Remediation:** Measures to assist deeply troubled plans
  - **Innovation:** New structure to foster innovative plan designs

Background: Multiemployer Pension Reform

Multiemployer Pension Reform Act of 2014 (MPRA)

- Signed into law December 16, 2014
- Included many components from "Solutions not Bailouts" including:
  - **Preservation** portion (elimination of PPA "sunset," technical corrections)
  - **Remediation** portion (tools for plans in "critical and declining" status)
- Did **not** include **Innovation** portion (specifically, "composite plan" design)

For Perspective: Distribution of Plans



Source: Segal Consulting analysis of Form 5500 data for plan years ending in 2017. Zone status applies to plan years ending in 2018. The size of each "bubble" is based on the total number of participants covered by the plan.

Joint Select Committee on Solvency of Multiemployer Pension Plans (Expired in 2018)

Committee Overview

- Created as part of two-year budget deal: Bipartisan Budget Act of 2018
- Tasked with finding legislative solution for multiemployer pension solvency crisis:
  - Estimated 130 plans in critical and declining status and facing insolvency within 20 years
  - PBGC multiemployer program projected to become insolvent around 2025

Joint Select Committee (Expired in 2018)

Actions in 2018

- Committee conducted 5 public hearings
  - History and Structure of the Multiemployer Pension System
  - Structure and Financial Outlook of the PBGC
  - Employer Perspectives on Multiemployer Pension Plans
  - Understanding What's at Stake for Current Workers and Retirees
  - How the Multiemployer Pension System Affects Stakeholders
- Committee missed its November 30 deadline, was dissolved December 31, 2018
- Legislative prospects for 2019 remain unclear

Possible Components of a Solution

Remove liabilities from distressed plans

- Partition benefits based to achieve solvency

Increase PBGC funding

- Increase premiums, implement variable structure
- New "premiums" on retirees, employer exit premiums
- Additional funds available from Treasury

Increase PBGC guarantee

- Maximum guarantee $70 per year of service
- Plan termination when 5 years from insolvency

Reform funding requirements

- Cap on interest rate assumption (e.g., 6.5% or 7%, with transition)
- Some green zone plans could become endangered (or even critical)

Reform withdrawal liability rules

- Focus on annual payments rather allocation of liability, but details unclear

Pensions&Investments

Source: Pensions & Investments: "Struggling multiemployer plans see help ahead at expense of healthy funds" – November 20, 2018

Early Actions in 2019

- **"Cost of Inaction:** Why Congress Must Address the Multiemployer Pension Crisis"
  - Held March 7, 2019 by House HELP Subcommittee (of Education and Labor)
  - Democrats largely focused on urgent need for a solution, cost of inaction
  - Republicans largely focused on funding requirements and preventing a future crisis
- On April 2, 2019, House Ways & Means Committee Chairman Neal commented that the committee will take up multiemployer plan issues by the end of 2019

The Butch Lewis Act

Legislative activity

- First introduced in November 2017
- Reintroduced in the House as “Rehabilitation for Multiemployer Pensions Act”
  - **Key sponsor:** Congressman Richard Neal (D-MA), Chair, Ways and Means Committee
  - Passed the House on July 24, 2019
- Reintroduced in the Senate as “Butch Lewis Act of 2019” on July 24, 2019
  - **Key sponsor:** Senator Sherrod Brown (D-OH)

The Butch Lewis Act

Overview

- Establish Pension Rehabilitation Administration (PRA) within Treasury Department
- PRA to provide loans to enable critical and declining plans to remain solvent
  - Some plans in critical status would also be eligible
  - Plans that have implemented MPRA suspensions must undo them and apply for loans
- Benefit reductions are not required
- Loan proceeds used to immunize or annuitize retiree liabilities
- Plan pays interest only for 29 years, full principal due in 30th year
- If loan is not sufficient to achieve solvency, plan may jointly apply for PBGC assistance
- Possible loan forgiveness if plan unable to repay loan

Other Legislative Proposals Related to Multiemployer Pension Plans

Miners Pension Protection Act	• **Key Sponsors:** Rep. McKinley (R-WV), Sen. Manchin (D-WV), Sen. Capito (R-WV) • First variation introduced in 2015; last variation introduced in early 2019 • Would amend the Surface Mining Control and Reclamation Act • Would also provide low interest loans to the UMWA Plan
Pension Accountability Act	• **Key sponsor:** Sen. Rob Portman (R-OH) • Originally introduced in 2016, last reintroduced in March 2019 • Would change participant voting rules under MPRA • Would eliminate "systemically important" override
Give Retirement Options to Workers ("GROW") Act	• **Sponsors:** Rep. Roe (R-TN), Rep. Norcross (D-NJ) • Introduced in February 2018 • Would allow multiemployer plans to adopt "composite plan" design • Originally part of NCCMP's "Solutions Not Bailouts" proposals • Hybrid composite plan design would apply to future service benefits only • Strict funding requirements for legacy benefits

Other proposals possible?

- Hill staffers have indicated that work is being done behind the scenes
- May be added to must-pass legislation

Applications to Suspend Benefits under MPRA

Recent developments:

- American Academy of Actuaries publishes notes from first meeting with Treasury/PBGC (Feb, 2017)
- Treasury published additional guidance in Rev Proc 2017-43 (Jul, 2017)
- New Special Master, Sam Alberts, appointed (Sep, 2017)
- Treasury approved suspension application on first submission (Nov, 2017)
- Treasury is open to pre-application conferences (Nov, 2017)
- American Academy of Actuaries publishes notes from second meeting with Treasury/PBGC (Jul, 2018)
- Applications approved on first attempt: 2016 = 0; 2017 = 1; 2018 = 2, 2019 = 3 (so far)

MPRA Applications as of August 7, 2019

Status	Comments	Count
Approved	So far, 6 approvals on first attempt	14
Denied	Applications denied, not yet resubmitted	4
Withdrawn	Applications withdrawn, not yet resubmitted	5
In Review	Two resubmissions	3
Total	Total number of plans submitting applications	26

See detailed listing on following slide

“MPRA” = Multiemployer Pension Reform Act of 2014

Applications to Suspend Benefits under MPRA *continued*

MPRA Applications as of August 7, 2019

					First Submission			Resubmission		
	Short Plan Name	**Location**	**Participants (Approx.)**	**Application Type**	Submit	Status	Decision	Submit	Status	Decision
1	Central States	Rosemont, IL	397,000	S	9/25/15	**Denied**	5/6/16			
2	Iron Workers Local 17	Cleveland, OH	2,000	S	12/23/15	**Withdrawn**	N/A	7/29/16	**Approved**	1/27/17
3	Teamsters Local 469	Hazlet, NJ	1,800	S	12/28/15	**Withdrawn**	N/A	3/31/16	**Denied**	11/10/16
4	Road Carriers Local 707	Hempstead, NY	4,600	S+P	3/15/16	**Denied**	6/24/16			
5	Iron Workers Local 16	Baltimore, MD	1,100	S	3/26/16	**Denied**	11/3/16	12/28/17	**Approved**	9/24/18
6	Bricklayers Local 7	Austintown, OH	500	S	6/28/16	**Withdrawn**	N/A			
7	Bricklayers Local 5	Uniondale, NY	900	S+P	8/4/16	**Withdrawn**	1/25/17			
8	United Furniture Workers A	Nashville, TN	9,900	S+P	8/17/16	**Withdrawn**	2/21/17	3/15/17	**Approved**	8/31/17
9	NY State Teamsters	Syracuse, NY	35,000	S	8/31/16	**Withdrawn**	4/5/17	5/15/17	**Approved**	9/13/17
10	Automotive Industries	Alameda, CA	26,000	S	9/27/16	**Denied**	5/9/17			
11	Western States Office Employees	Portland, OR	7,500	S	2/22/17	**Withdrawn**	8/11/17	5/15/18	**Approved** *	9/14/18
12	Teamsters Local 805	New York, NY	2,000	S+P	3/22/17	**Withdrawn**	9/21/17	2/23/18	**Approved**	11/16/18
13	IAM Motor City	Troy, MI	1,200	S	3/29/17	**Approved**	12/13/17			
14	Alaska Ironworkers	Anchorage, AK	800	S	3/30/17	**Withdrawn**	10/19/17	12/19/17	**Approved**	6/8/18
15	Southwest Ohio Carpenters	Austintown, OH	5,500	S	3/30/17	**Withdrawn**	10/12/17	6/29/18	**Approved**	3/21/19
16	Pressroom Unions	New York, NY	1,800	S	3/15/18	**Withdrawn**	10/1/18			
17	Plasterers Local 82	Portland, OR	300	S	3/28/18	**Approved**	12/20/18			
18	Plasterers Local 94	Harrisburg, PA	100	S+P	3/30/18	**Approved**	12/20/18			
19	Sheet Metal Local	Massillon, OH	1,600	S	3/30/18	**Withdrawn**	10/2/18	3/29/19	**In Review**	
20	Mid-Jersey Trucking and Local 701	No. Brunswick, NJ	1,900	S	6/25/18	**Approved**	3/21/19			
21	Toledo Roofers Local No 134	Toledo, OH	500	S	6/25/18	**Approved**	3/21/19			
22	Local 807 Labor Management	Long Island City	4,600	S	6/29/18	**Withdrawn**	2/5/19			
23	Laborers Local 265	Cincinnati, OH	1,300	S	7/31/18	**Withdrawn**	2/14/19			
24	Western Pennsylvania Teamsters	Pittsburgh, PA	23,000	S	9/24/18	**Approved**	6/20/19			
25	IBEW Local 237	Niagara Falls, NY	400	S	9/28/18	**Withdrawn**	4/5/19	6/28/19	**In Review**	
26	Composition Roofers 42 Pension Plan	Cincinnati, OH	500	S	6/28/19	**In Review**				

Application types: "S" = suspension only, "S+P" = suspension including partition

"Decision" date is the later of the Treasury decision or (if applicable) final approval following the participate vote.
In cases of withdrawn applications, the decision date applies to the withdrawal letter from the plan sponsor (if available).

V Application approved by Treasury, subject to participant vote

* Second resubmission, third submission overall

Participant Votes under MPRA

Overview of MPRA participant vote rules

- Participant vote takes place no later than 30 days after Treasury approves suspension
- Suspension takes effect unless rejected by a majority of participants

  Important point: an unreturned ballot counts as a vote in favor of the suspension
- Treasury will override participant vote for plans that are "systemically important"
  - If plan represents at least $1 billion in projected liability to PBGC

Participant Votes under MPRA

Pension Accountability Act would change voting rules

- Act reintroduced by Senators Portman (R-OH) and Brown (D-OH) in March 2019
  - Originally introduced in 2016, reintroduced in 2017
- Would count only returned ballots in determining if suspension passes
- Would eliminate the “systemically important” override

Participant Votes under MPRA *continued*

Participant votes as of August 7, 2019

- All 14 participant votes conducted to date have failed to reject the suspension
- However, in all but 2 votes, the majority of returned ballots were against the suspension
- Important to consider that ballots may explain that non-response counts as “yes” vote

Debate on Stricter Funding Requirements

Increase funding requirements for multiemployer plans?

- Idea raised by several members of Joint Select Committee
- Intent is to prevent a new multiemployer solvency crisis from emerging
- May include mandated valuation discount rates, similar to single-employer plans

NCCMP Common Sense Principles

- "In order to avoid looming insolvencies, laws must be changed to create incentives for plans to enhance funding and add new tools to reduce plan liabilities"
  - Liability removal tool
  - PBGC funding (premium increases)
  - Proactive management tools (to react more effectively)
  - Withdrawal liability consequences
  - New plan designs (variable plans, 414k plans, composite plans)

Composite Plan Proposal

Background

- Developed as part of NCCMP "Solutions Not Bailouts" proposals
- Modeled after Canadian plan design

Key features

- Optional design available to eligible plans
- By definition, neither defined benefit (DB) nor defined contribution (DC)
  - Lifetime income; benefit amount subject to adjustment
  - No unfunded liability, no withdrawal liability
  - No PBGC guarantees, no PBGC premiums
- Legacy plan benefits remain intact, must be funded

Composite Plan Proposal: A Brief History	Date
"Solutions Not Bailouts" report by NCCMP Commission	Feb 2013
"Multiemployer Pension Reform Act" (MPRA) - passed without composite plan proposal	Dec 2014
"Multiemployer Pension Modernization Act" - draft legislation introduced	Sep 2016
"Give Retirement Options to Workers Act" (GROW Act)	Feb 2018

Composite Plan Proposal *continued*

Legacy funding rules

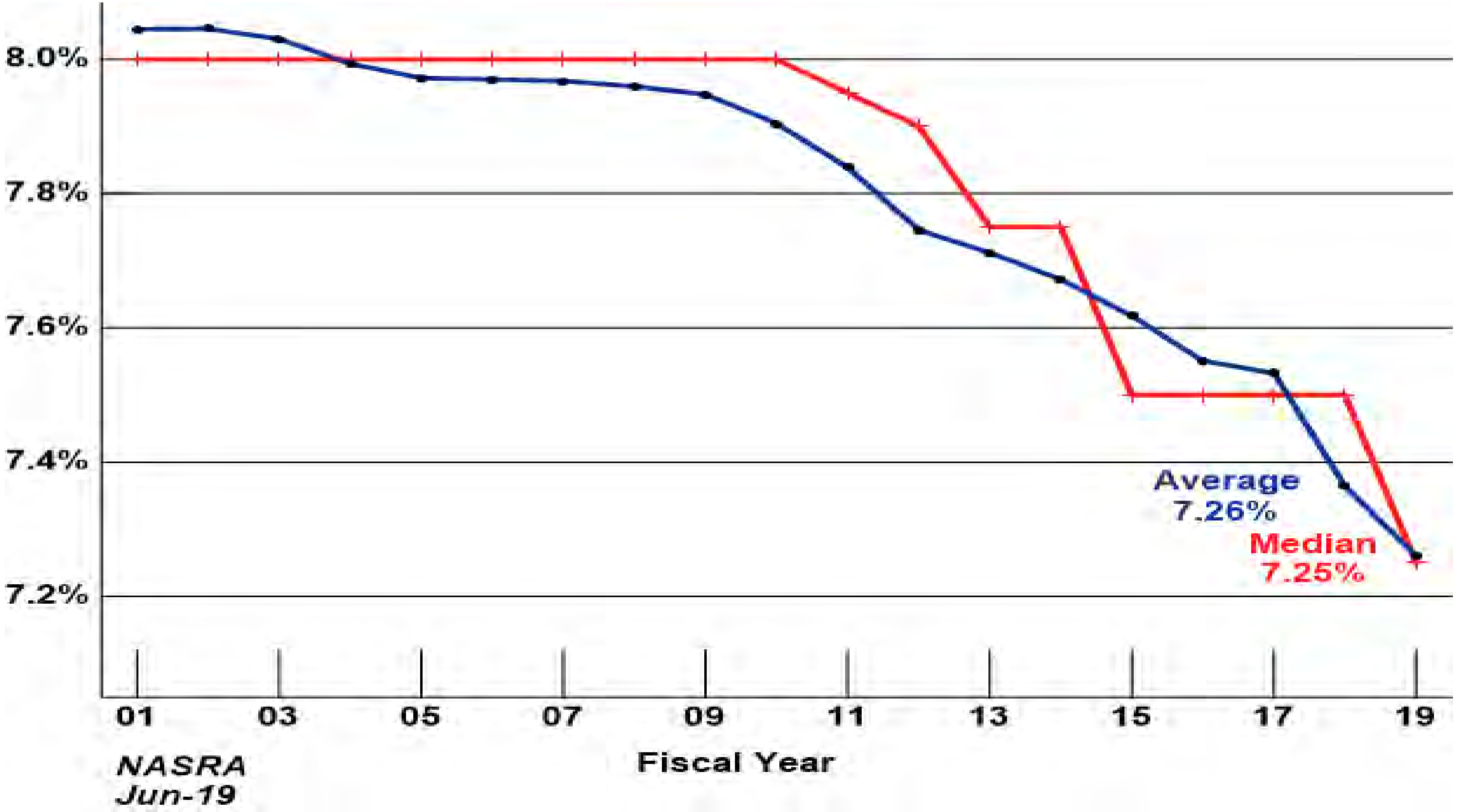
- Legacy and composite: two components of same plan
- ERISA/PPA rules continue to apply to legacy plan
- Transition contributions
  - Contribution dedicated to fund legacy liability
  - Initial amount: 25-year amortization based on actuary's assumptions
  - Subsequent gains and losses amortized over 15 years
  - Transition contribution in future years cannot drop below initial rate
  - Contributions continue until legacy liability fully funded based on PBGC assumptions
- Special rules if legacy plan goes into yellow or red zone
  - Potential anomaly: at least 25% of total contributions must go to composite accruals
- Optional 25-year amortization of unfunded liability in funding standard account

Because Transition Contributions must continue until the legacy liability is fully funded *based on PBGC assumptions*, the transition period may end up being much longer than 25 years.

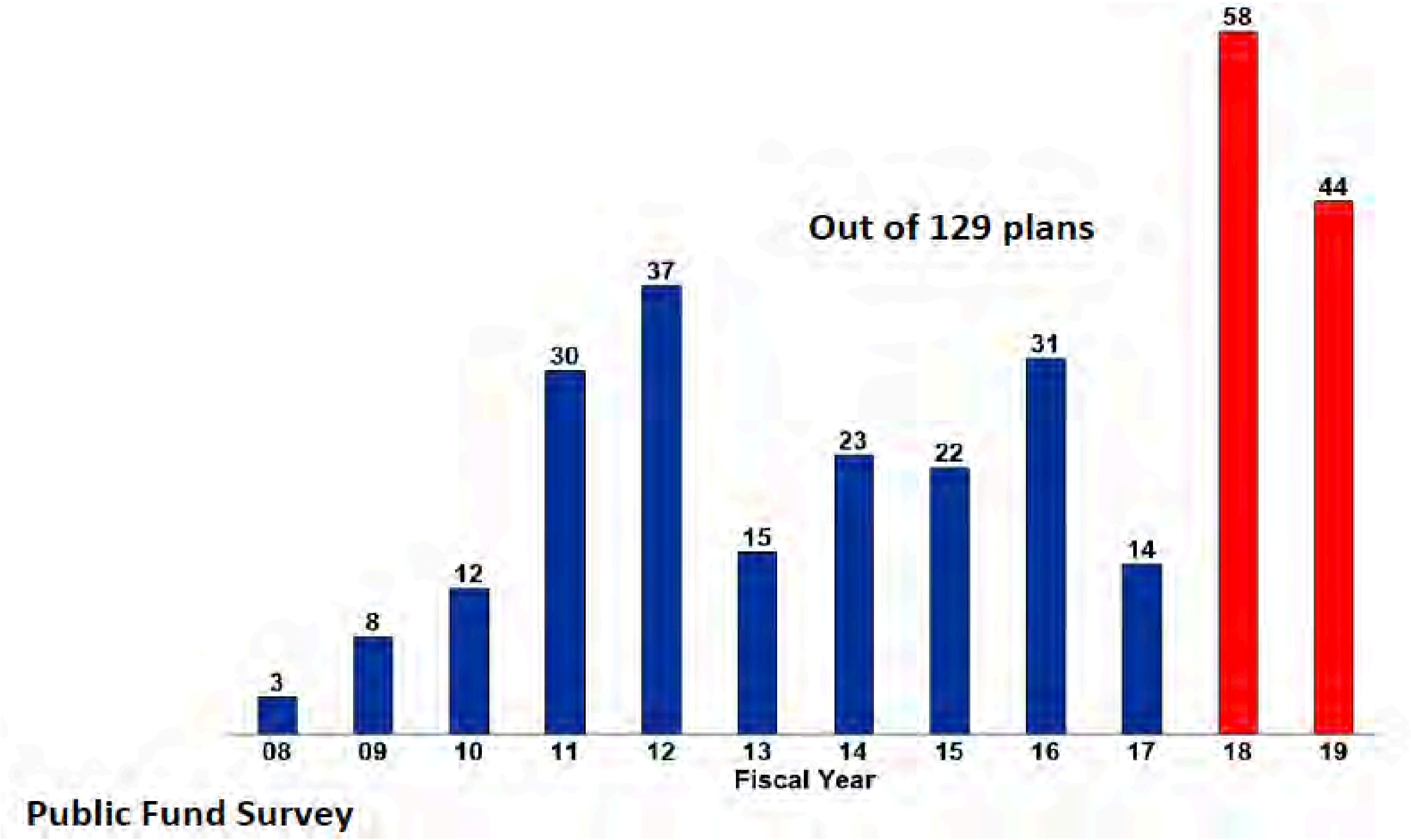
This is a high-level summary of draft legislation dated February 2, 2018. Provisions are subject to change.

Public Sector Developments

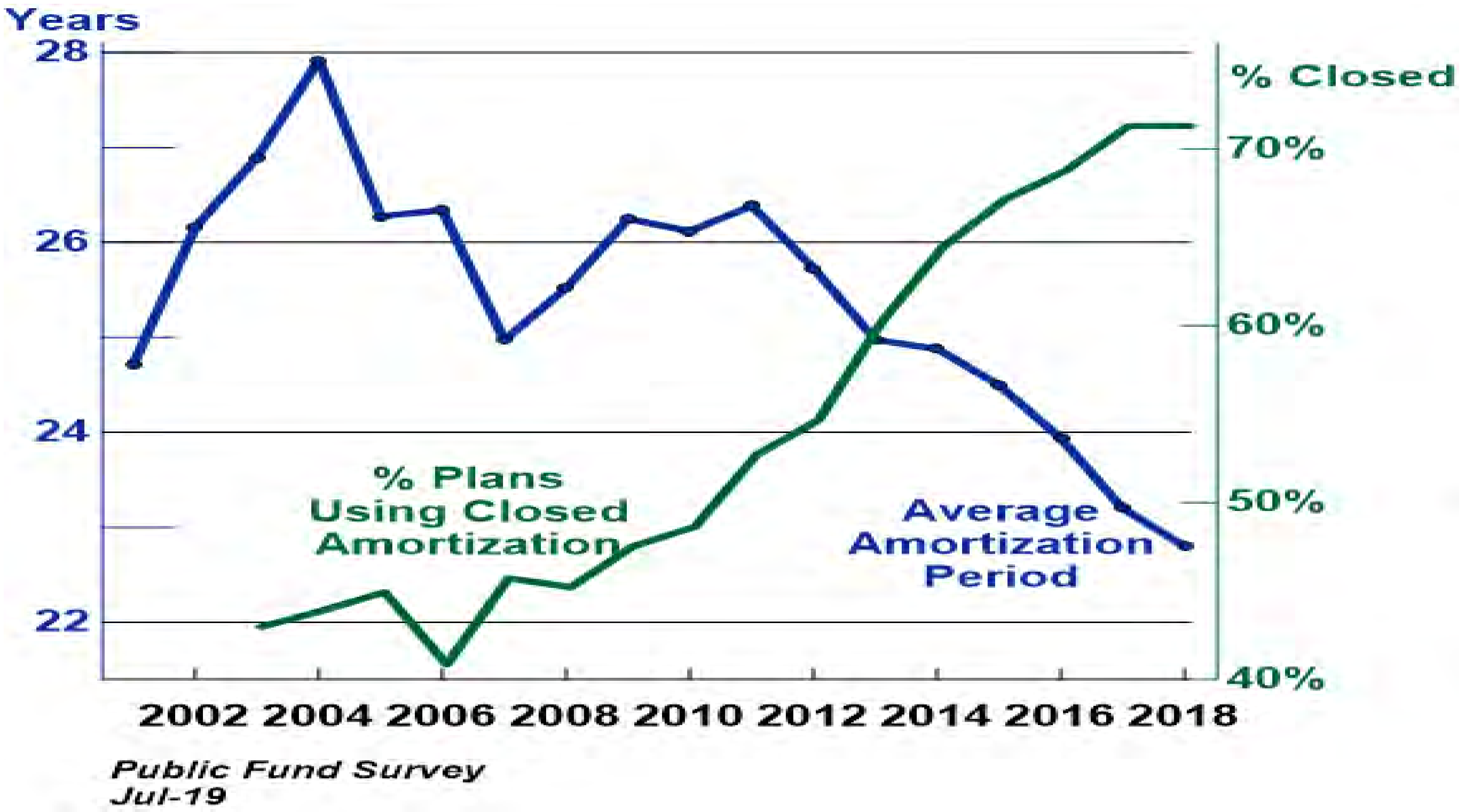
Investment Return Assumptions



Number of Plans Reducing Their Return Assumption



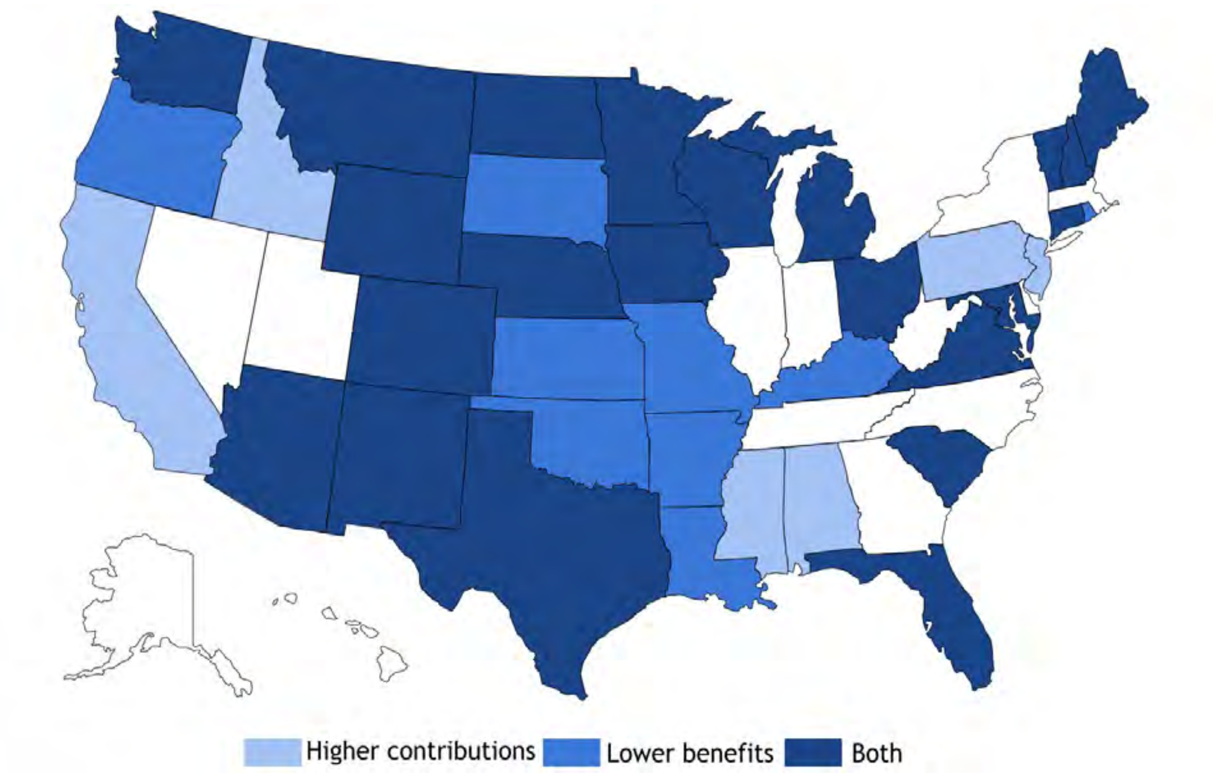
More Aggressive Amortization of Unfunded Liability



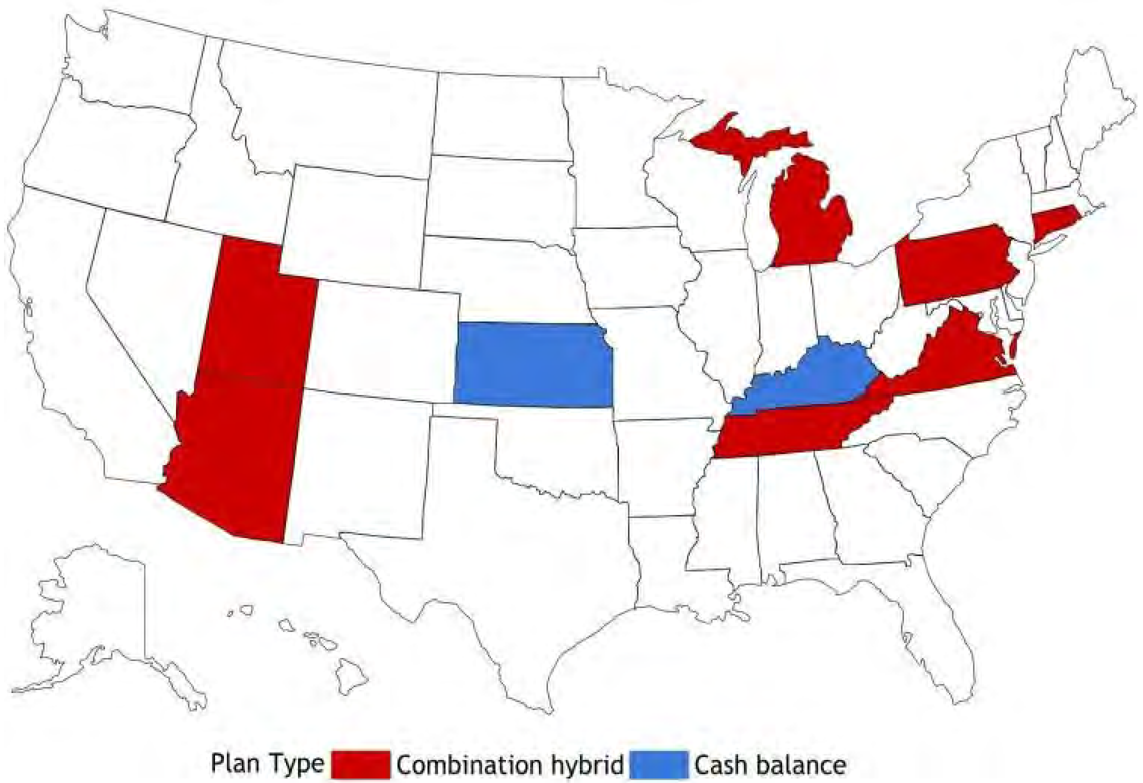
Redistributing Risk

- Virtually all plans now require employee contributions
- Most that were already contributory were increased
- More employee contribution rates/benefits tied to factors:
  - Fund investment performance or
  - The funding condition of the plan
- More cost of living increases are reduced or suspended based on the financial condition of the plan
- A number of states employed (or added) self-adjusting features
  - Benefit levels and/or contribution levels adjust depending on factors such as plan funding ratio, investment performance, inflation, or some combination of these

State Pension Reforms Affecting Broad Groups of Current Active Participants



States Creating New Hybrid Plans, 2009-2018



GASB Exposure Draft for 457 Plans

- Requires same fiduciary, accounting and financial reporting as defined benefit pension plans
- NAGDCA Legislative Committee provided comments
  - "Employer contributions" to 457 plans are actually wages subject to FICA taxes and elective deferrals under IRS rules
  - Employers contributions are not separately reported
  - Plans would not be able to report value on retroactive basis

Canadian Updates

- Federal
  - Target benefit legislation stuck in House of Commons since 2016
  - Liberals will form a minority government as a result of recent elections
  - Focus is on pension promises and bankruptcies
  - Creation of Advanced Life Deferred Annuity (ALDA) in 2019 allows deferral of annuity payments until age 85
- Ontario
  - Pension Benefits Act amended to permit target benefit plans (regulations pending)
  - Pension Benefit Guarantee Fund (PBGF) for insolvent single-employer DB plans increased coverage and premiums for 2019 filing year

Canadian Updates

- Other Provinces
  - Nova Scotia and Manitoba looking at Ontario funding framework.
  - No legislation has been introduced
- Canadian Institute of Actuaries
  - Draft (new) guidelines for commuted values have been released
  - Multiemployer pension plans can determine commuted values on a going concern basis

Conclusions

Comments

Questions

2019 ANNUAL MEETING & EXHIBIT

Session 177: Late Breaking Developments

MITCHELL SEROTA, FSA, EA, MAAA

Wed., October 30, 2019

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Report on conference at MIT Golub Center for Finance and Policy

Mitchell Serota, FSA, EA, MAAA

TOPICS TO DISCUSS

Improving Products and Institutions

Sustainability and Efficiency

Investment patterns for Public Pension Plans

Improving Products and Institutions

- Default Options in 401(k) Plans
- Reverse Mortgages in China
- SeLFIES

Default Options in 401(k) Plans

- Taha Choukhmane, MIT
- What is the efficacy of automatic enrollment?
- Evaluating Behavioral economic approach of Richard Thaler
  - “libertarian paternalism”
- Conclusions/assertions
  - As default rate of savings increases, so does the rate of opting out of saving at all
  - This is the case whether or not there is a match
  - If there is a match, there is a cost to the employee by not taking advantage

Default Options in 401(k) Plans

- Conclusions/assertions (continued)
  - Impact on wealth is still not totally clear because the concept of auto-enrollment has not been around for long
  - Auto enrollment helps wealth accumulation for the poorest 12%, little effect of mid-range earners and negative impact on the richest
  - The negative impact on the richest decile seems to stem from a pattern of just accepting the default rate and not saving any more, compared to higher-paid employees with no AE. A matter of inertia not to change the percentage.

Default Options in 401(k) Plans

- Conclusions/assertions (continued)
  - Auto enrolling in a first job leads to less savings in subsequent jobs with no auto-enrollment
    - 12% drop out entirely
    - Savings rate drops 35 basis points for those who stay
  - Thus, savings habits are NOT formed by AE; AE is not a psychological anchor

Default Options in 401(k) Plans

- Conclusions/assertions (continued)
  - For employees who are not in an auto-enrollment plan, and they begin to save within their first year of employment,
  - they save at a much higher rate than the default rate of an auto-enrollment plan
  - and accumulate as much as the auto-enrollment employees do within 3 years

Reverse mortgages in China

- A new concept driven by the need to keep up the standard of living as people age.
- Enormous appreciation of housing values
- Possible bubble
- Will the bank provide full market value or hedge?
- Will offspring be angry that they are losing their inheritance?
- Surveys indicate this concept may actually take off

SeLFIES

Standard of Living Indexed

Forward Starting

Income Only

Securities

Robert Merton (Nobel Laureate)

Arun Muralidhar (future Nobel Laureate)

SeLFIES

- Purpose:
  - To allow citizens of the world to save for their retirement
  - To assure the Standard of Living they are accustomed to at retirement
  - To provide Cost-of-Living increases through retirement

SeLFIES

- Mechanism:
  - National governments sell bonds over the course of the working lifetime of the buyer
  - Investments are primarily in infrastructure
  - Government guarantees payout

Solves three problems:

Access to retirement plans

Vehicle for saving

Minimal need to understand financial nuances, e.g., investing and decumulation

SeLFIES

SelFIES will be sold as units of retirement annuities

For instance, a 24-year old might buy $5 of retirement income payable at age 64

Over the course of working lifetime, she may buy 10,000 SeLFIES to provide an income of $50,000 per year at retirement.

Price of each purchase will change as person ages.

Flexibility in changing age of actual retirement

Flexibility in amount of retirement income desired.

Annuity stream lasts for $e_{64} + 2$.

SeLFIES

- These investments do not have to worry about repurchasing bonds when they mature in 30 years because there is government guarantee
- Maybe sell SeLFIES to insurance companies to bring private sector into the equation
- Inflow of cash allows government to invest in infrastructure
- (Personal observation: They think the theoretical basis is sound; I expressed concerns about practicality)

Sustainability and Efficiency

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Impact of investment fees on tax revenues

- Mattia Landoni, Southern Methodist University
- $23.5 Trillion of Tax-Deferred Retirement Assets
- By deferring taxation, the Federal Government increases the Assets Under Management by $3T, the amount necessary to pay future taxes.
- The cost of fees on this $3T, for which the retiree receives no revenue, is $20 billion/year, which is a tax subsidized boon to the investment industry.
- Money gets sucked out of the system

Impact of investment fees on tax revenues

- Roth is “front-loaded”
- IRA and Prof Sharing are “back-loaded”
- Gov’t receives money sooner for Roth accounts
- Back-loaded increases government debt AND commensurate increase in retirement funds that will ultimately be taxed
- Back-loading taxation inefficiently increases the amount of resources spent on asset management
- Gov’t effectively subsidizes fees
- Therefore, encourage Roth-type

Public Investment Plan Choices

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Reach for Yield in Public Plans

- Matthew Pritsker, Federal Reserve Bank of Boston
- Lower funded status drives higher risk tolerance
- Lower interest rates drive higher risk tolerance
- They may try to shift the risk onto non-public plan debt by delaying payment or defaulting.
- Higher risk may mean less return and worsening financial condition

Reach for Yield in Public Plans

- GASB allows discount on expected return of assets, which prompts overstating expected return
- Public pension funds' expectations have declined little while Treasury yields have significantly declined.
- Losses could result in more severe underfunding with ramifications for taxpayers

Infrastructure as an asset class

- Joshua Rauh, Aleksander Andonov
- When public plans invest in infrastructure, their results underperform institutional investors
- A new asset class
  - Renewable energy
  - Traditional energy
  - Utilities
  - Transportation
  - Communication
  - Social

Infrastructure as an asset class

- Strong returns
- Low sensitivity to business cycle
- Low correlation to equity markets
- Predictable cash flows
- A perfect fit for long-duration pension liabilities

Infrastructure as an asset class

- What's the source of lower performance?
  - Susceptibility to non-financial objectives
  - Wide range of political and social benefits in the region
  - Less concern about marginal investments
- Result: An implicit subsidy from taxpayers to underperforming assets

Conclusion

- Arun Muralidhar, Mcube Investments
- There is no ability at all to project expected returns, even if GASB requires it
- Modern Portfolio Theory and Efficiency Frontiers no longer work
- Consider the negative yields in the period 1999-2009
- Infrastructure belongs in an existing bucket instead of being treated as a new asset class
- Investment boards have too much ability to crank up the risk: no oversight or regulation
- Misalignment of interests when consultant makes recommendation and Board is not well-trained to understand implications

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