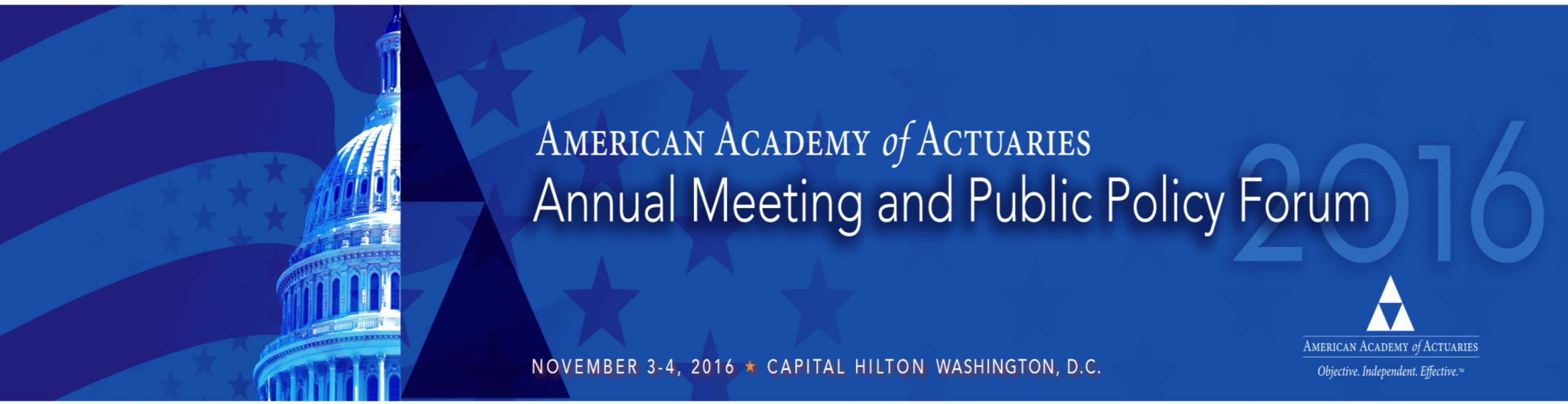
Retirement Goes Goldilocks: The DC’ing of DB Plans and the DB’ing of DC Plans



November 4, 2016

Speakers

- Eric Keener
  - Chairperson, Academy PPC Forward Thinking Task Force
- Paul McCrossan
  - New Brunswick Pension Reform Task Force
- Conrad Ferguson
  - Partner, Morneau Shepell
- Stacy Schaus
  - Executive Vice President and DC Practice Leader, PIMCO

Retirement Goes Goldilocks: The DC'ing of DB Plans and the DB'ing of DC Plans

Update on Retirement for the AGES

Eric A. Keener

Retirement for the AGES

- In 2010, the Academy Pension Practice Council decided to:
  - Create a Forward Thinking Task Force
  - Build on ideas from the SOA's Retirement 20/20 initiative
  - Identify guiding principles for a robust retirement system
  - Introduce those principles into policy discussions
- Focuses on retirement design principles
- Does not address universal coverage or adequacy, and assumes existing Social Security program remains in place

AGES Principles

- The AGES principles provide a framework for evaluating the effectiveness of:
  - Retirement plans and systems (both public and private)
  - Retirement income policy proposals
- Four key principles:
  - Alignment between stakeholder roles and competencies
  - Governance that manages competing needs and reduces conflicts
  - Efficiency in maximizing returns and minimizing risks
  - Sustainability of the system

Applying the AGES Principles

- The Forward Thinking Task Force is using the AGES principles to develop assessments for various reform proposals
- Positives and negatives under each principle are weighed to develop a letter grade for that principle
- Letter grades for each principle are then weighed to develop an overall letter grade for system or proposal

How Traditional DB and DC Plans Fare under AGES

- AGES assessments were developed for a typical U.S. single employer DB plan and safe harbor DC plan
  - Grade for single employer DB plan: C+
  - Grade for safe harbor DC plan: C
- DB plan does fairly well at Alignment and Efficiency, but not very well at Governance and Sustainability
- DC plan does better at Sustainability, but not as well at Alignment and Efficiency

Is There a Better Way?

- To better meet the AGES principles, plans likely need to move beyond the traditional DB/DC paradigm, e.g.:
  - DB plans with risk-sharing features
  - DC plans that pool investment risk and offer lifetime income
- The New Brunswick Shared Risk Model is an example of a risk-sharing DB plan that fares well under AGES
  - Grade for New Brunswick Shared Risk Model: A-

Next Steps for AGES

- Assessments for additional reform proposals including:
  - Bipartisan Policy Commission recommendations
  - Multiemployer composite plan proposed legislation
- Issue Brief on state-based retirement initiatives
  - Current initiatives tend to be DC; potential for DB features exists
- Learning from systems outside the U.S.
  - E.g., Australian Superannuation Scheme
- Ongoing engagement with policymakers and other stakeholders

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Risk Sharing Plan Design – Conceptual View

W. Paul McCrossan

Changing Pension Plan Design / Regulation – Conceptual View

- Key conditions
- Understanding DB pension's real problems
- Intergenerational / Intra-generational Equity
- Process
- Principles
- Importance of Risk Management

Key conditions for pension redesign / re-regulation

- Strong leadership is a must
  - Political
    - Premier's instructions to Task Force
      - NOT looking for "shelf improvement kit"
      - DO NOT KICK the can down the road
  - Labour and Management
- Impartial go-between person to talk to parties very helpful
- Recent ratings challenges may galvanize to action
- Honest discussion about real DB problems required
- Accept undeniable fact that:

  A DB Pension Plan's security is only as good as the ability and willingness of the funding parties to pay

Understanding Traditional DB Plans' Real Problems

- Assets are not matched to liabilities
  - Going concern measurement can indirectly incent to increased asset risk taking
  - Volatility is an enemy of mature plans (reverse $ cost averaging)
- Interest rates are very low and seem to be sticky
- People live longer
- Retirement rules not keeping up with increasing life expectancy ***(tax assistance neutrality)***
- When plans become too expensive, contribution deferral or reduction of future benefits seem to be preferred
- Too many opportunities for sub-groups to transfer problems to others

Interest and Mortality Risks

- Years as co-chair of IAA Risk Measurement Task Force convinced me risks can't be managed realistically unless they are calibrated to the market
- Laurence Booth (Professor of Economics and Canada's foremost authority on equity risk premium on 2007 OTPP panel of experts) said taking account of the equity risk premium without taking account of volatility in a mature pension fund is "***crazy*** finance" yet actuaries and accountants do just that
- North American pension actuaries almost forfeited their core competency (mortality) because they ignored mounting worldwide evidence of both cohort mortality improvement and high income high education super mortality improvement despite mounting international pension evidence even though insurance actuaries have recognized "super-select" mortality for 20 years

Intergenerational/Intra-generational Equity

- Traditional solution to addressing funding challenges is to transfer the cost to future generations (i.e., younger members, taxpayers for public sector plans)
  - Problem of leverage in large, mature plan is real
  - When does the pension arrangement become so costly to future generations that TBP/DC would be better option?
  - If the plan sponsor and active plan members are not willing or able to make the necessary contributions to support the pensions that were previously understood to be guaranteed, then what?
- Increasing life expectancy provides opportunity to balance interests among DB member cohorts ***and DC plan members (tax assistance neutrality)***

Process

- Collaborative approach with some public sector unions
- All traditional alternatives considered (status quo, reduce future benefits, DC, TBP) *plus benefit security constraints*
- Over 100 costings done
- Dozens of ALM runs using various funding/spending rules
- Key conclusion favoring conversion to strongly regulated risk managed target benefit plans:

  "***Conflicts between affordable, sustainable and intergenerational equity were such that absolute 'guarantee' of any pension outcome was unrealistic in most, if not all, circumstances***."

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Principles – RISK MANAGEMENT ESSENTIAL HERE

Objectives/Principles	Concept
Security (tests based on future investment performance only – other risks still there)	Contributions sufficient to deliver: • high probability base benefits not reduced; • high probability to deliver on past accrued benefits; and • good chance to deliver on ancillary benefits
Sustainability	Risk management framework
Affordability	Stable contributions with modest allowed variations and **long term costs comparable to allowed DC limits**
Transparency	Members aware of the types of risks they have and their potential magnitude
Intergenerational Equity	All members share in risk in some reasonable manner on all benefits. Must stay on top of mortality.

Importance of Risk Management

- North American pension actuaries (and regulators) are far behind the international professional knowledge curve
- Stochastic analysis has been best international actuarial practice for over 15 years
- Accounting and regulatory standards may be important obstacles to good actuarial professional practice
- Level of uncertainty of benefits should be known both to plan sponsors and to plan participants
- There are commercial stochastic analytical products on the market that have been well tested and cover national, regional and international asset categories well

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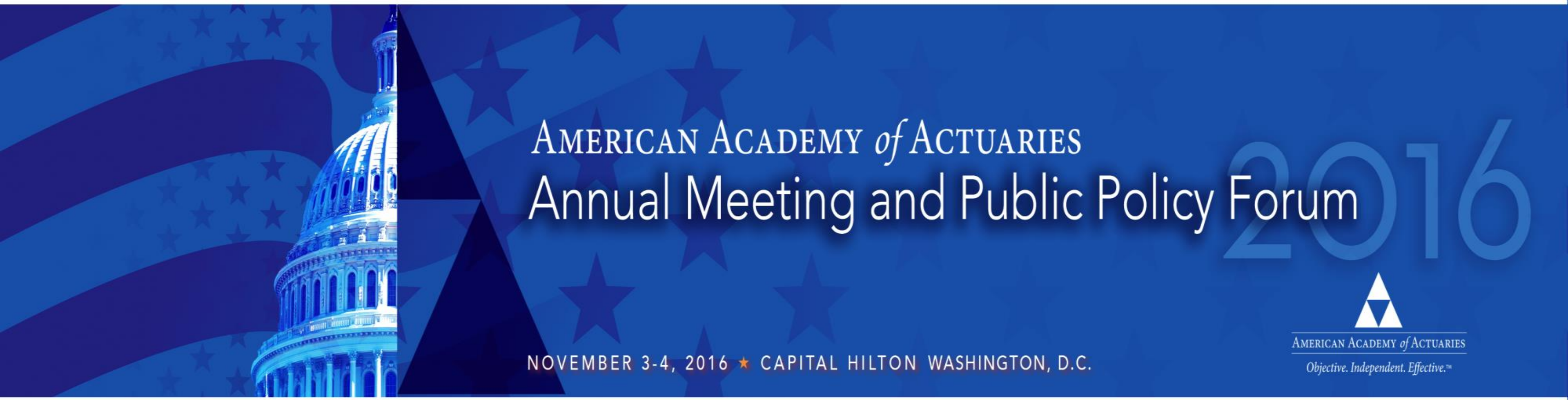


Risk Sharing Design – Actual Model

Conrad Ferguson

Agenda - Shared Risk Pension Plan

- Fundamental Facts
- Conversion, Pricing and Operations
- Overview of policies
- Illustrations
- Other Considerations
- Other Canadian Developments
- Summary

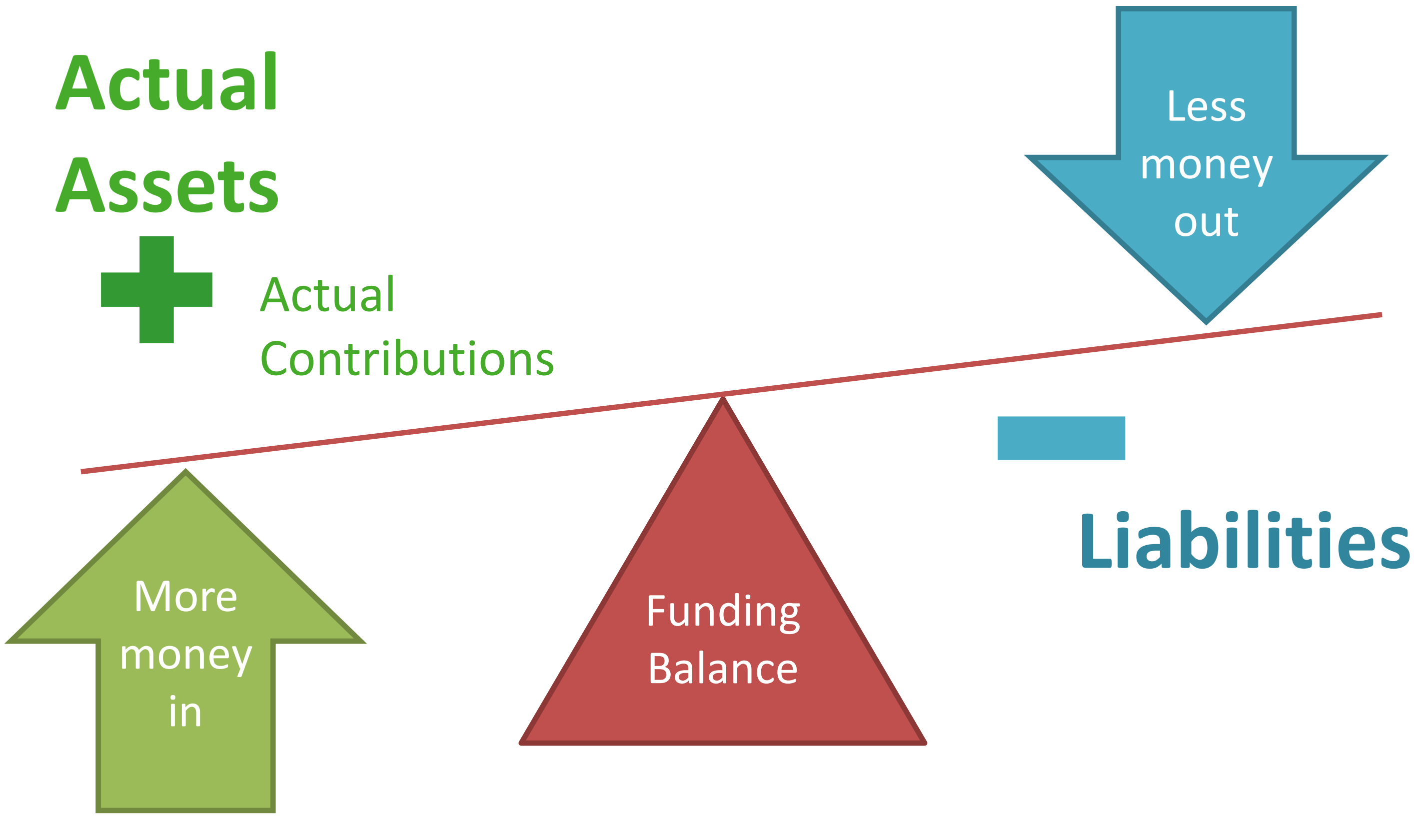
Fundamental Facts

1. Future is uncertain

2. All types of plans are subject to same basic equation:

Equation	Important Considerations
Actual Benefits	Type of plan drives allocation to members
=	
Actual Contributions	Limited to ability or willingness to pay
+	
Actual Investment Income	Reflects combination of market return (variable) and risk tolerance in selecting asset mix

Fundamental Facts - Balancing Equation
Involves **more money in** or **less money out**



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General Overview – Shared Risk /Target Benefit Plan

Structural Elements (Universal)

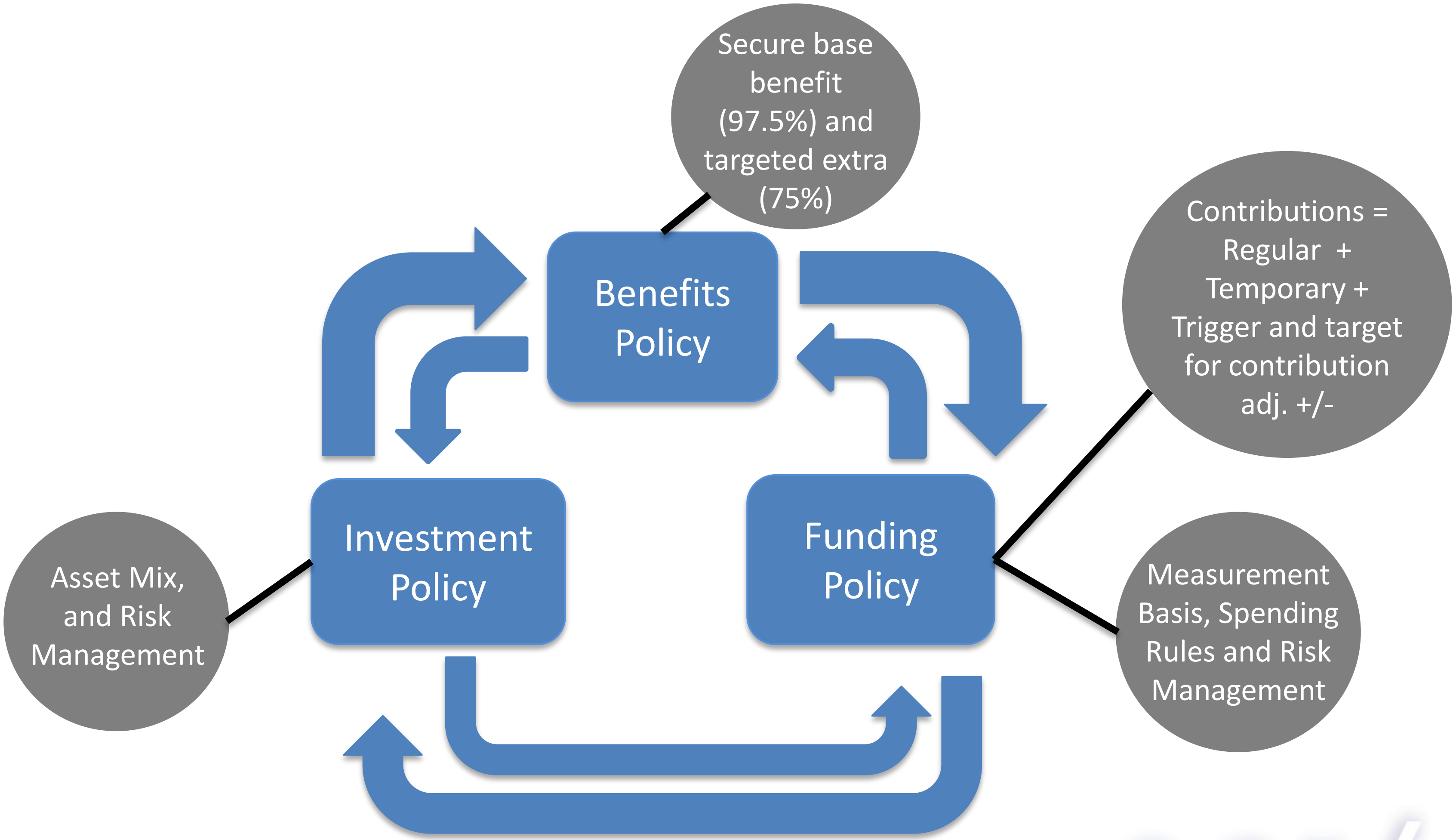
- Accept fundamental facts
- Enabling Legislation
- Governance Structure
- Integration and interaction of:*
  - Benefits;
  - Funding; and
  - Investment Policies
- Risk Management on both sides of balance sheet*

Operational Rules (Preferential)

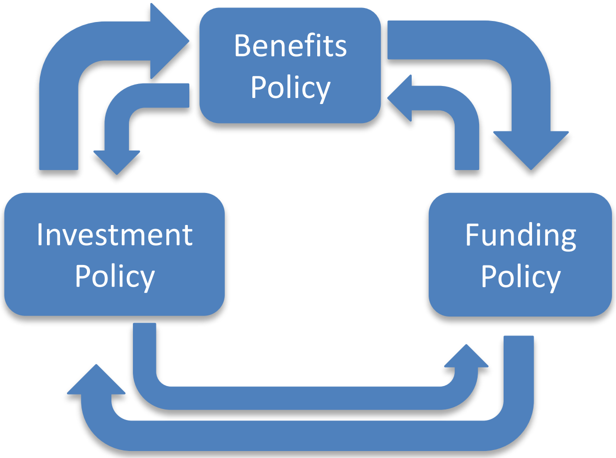
- Risk Management Standard
  - Pricing Standard
  - Conversion Standard
  - Measurement Basis
- Benefit Structure
- Contribution Rules
- Spending Rules
- Priorities for response to excess/deficient funding

* Often overlooked when looking at solutions for underfunded plans

Conversion, Pricing and Operations



Conversion, Pricing and Operations



Fundamental Elements

- No absolute guarantees
- Conversion of accrued benefits allowed
  - Subject to "priced-in", minimum performance standards
- Pricing of contribution formula is based on stochastically modeled interactions of funding, benefits and investment policies
- All future benefit, contribution adjustments and asset mix decisions driven by actual outcomes
- Model is self correcting
  - Sufficient fund capacity: spending contributions
  - Reduced Funding capacity: spending contributions

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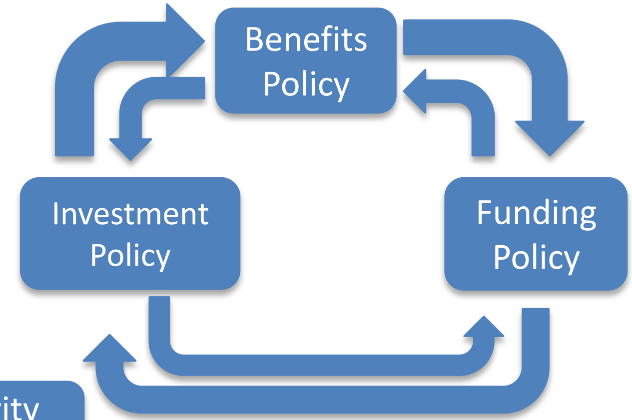
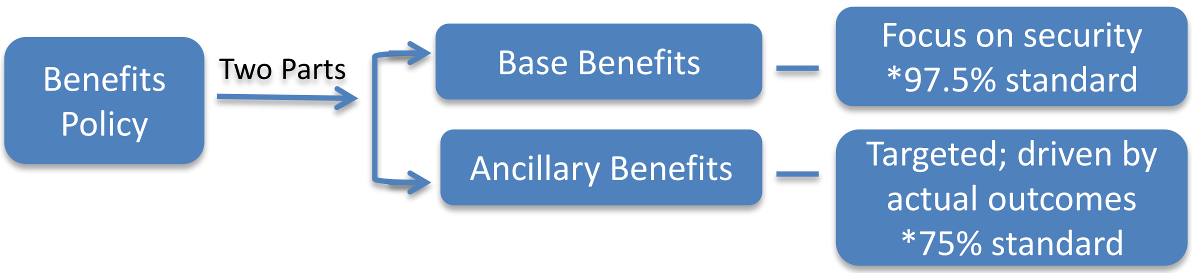
Benefits Policy





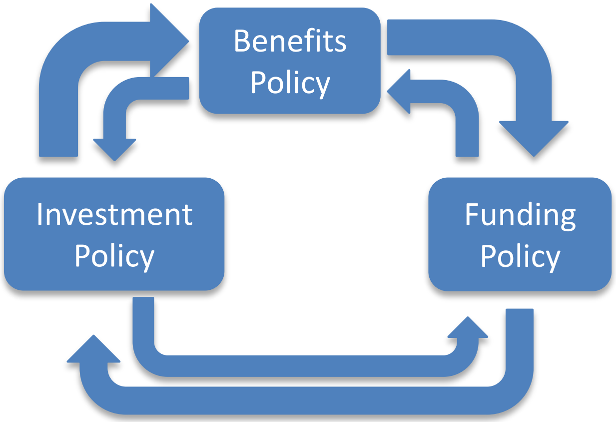
Base Benefit = Lifetime pension at normal retirement age
+ all previously granted indexing
+ attained retirement rules

Ancillary Benefits = Everything else

*97.5% Standard – Operation of the Funding Policy (i.e. contributions deposited and any required adjustments, and indexing granted and other funding policy actions) will not lead to a reduction in base benefits in at least 97.5% of stochastically modeled 20-yr trials (minimum 1,000 trials using best estimate type economic assumptions).

*75% Standard – Average outcome over 20 years produce expected benefit of at least 75% of target. Main focus is typically indexing as this is the main driver here. If that is met other ancillary benefits usually easy to meet.

Measurement Basis and Other Operational Rules



- Asset mix – Focus on left side of tail in initial pricing
  - Discount rate close to IAS 19 yield curve at the time (4.5% p.a. to 4.75% p.a. at inception 2012, 2013)
  - Mortality: latest information available
  - Other assumptions realistic to prudent
- Open Group Funding Ratio = $\dfrac{\text{PV Excess Contributions 15 years + MV Assets}}{\text{Base Benefits Liabilities}}$
  - Measures "capacity to pay"
  - Inherent population decline risk present

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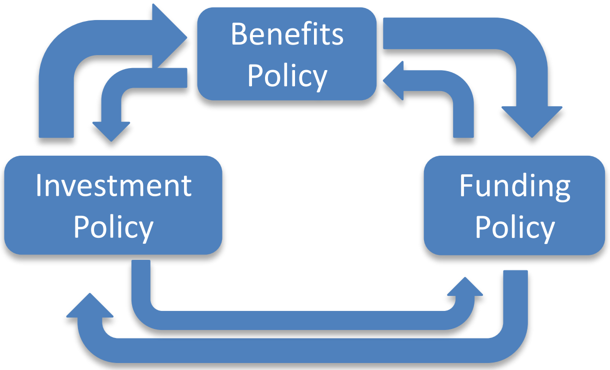
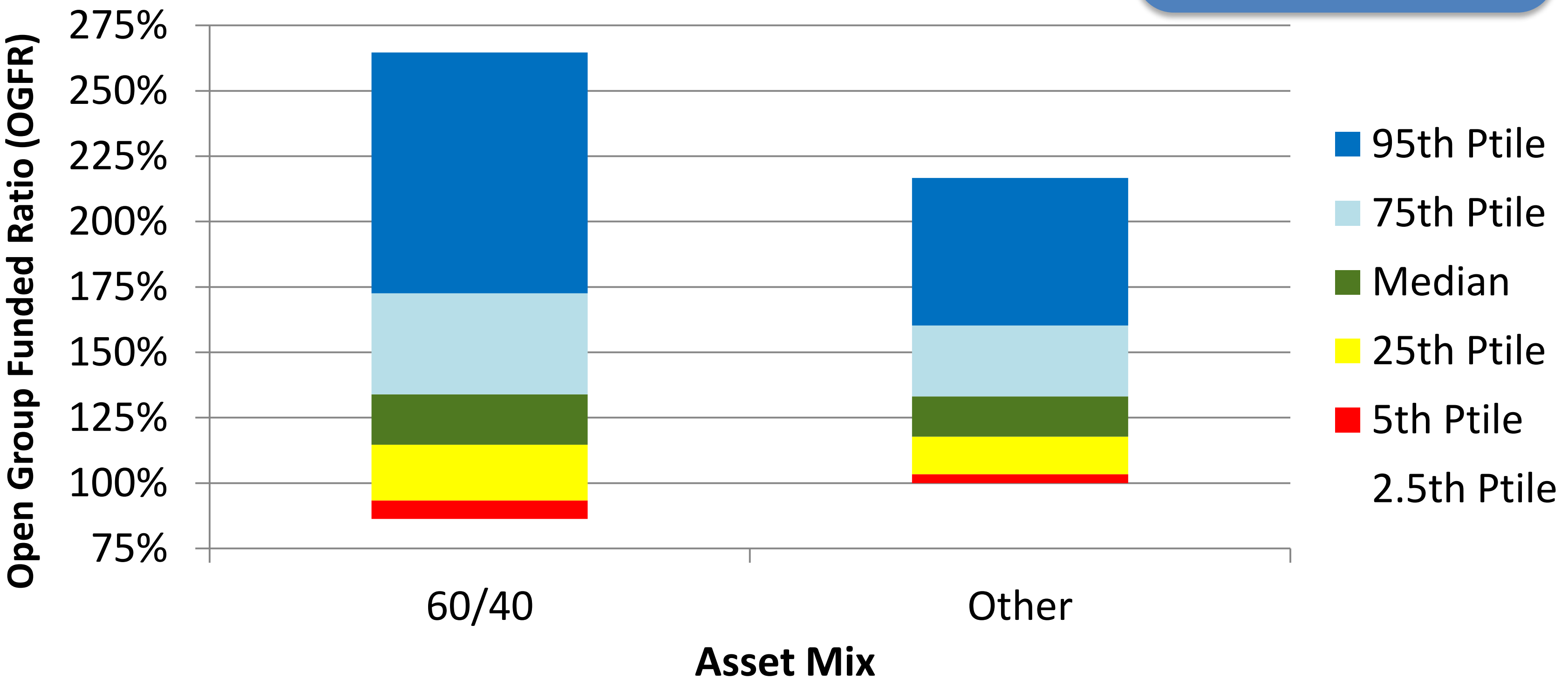
Illustration: Asset Mix Risk Management Matters - Distribution of OGFR at year 20





60% eq./40%FI vs 20%eq./20%lowvolEq./40%FI/20% Alt.

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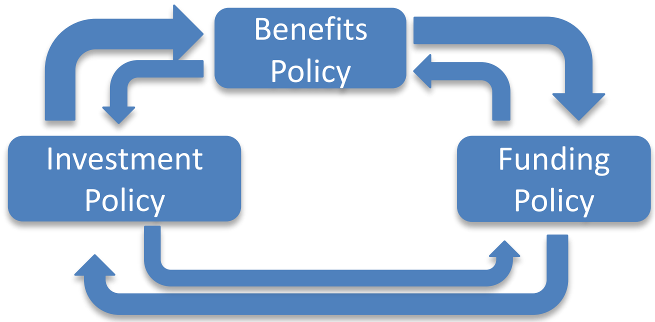
Risk Management
Spending/Contributions



OGFR

180 %

140 %

105 %

No action zone

OGFR<100% 2 Consecutive Years

MORE MAY NEED TO BE DONE

TRIGGER PHASE 2 OF FEUP

- No limit on spending above 140%:
  - Reduce contributions (max 25%)
  - Upgrade benefits
  - Reduce risk (immunization, buy annuities, etc.)

TRIGGER PHASE 1 OF FUNDING EXCESS UTILIZATION PLAN (FEUP)

- Maximum spend is 20% of excess between 105% to 140%, can include:
  - Indexing of benefits, supplementary benefit
  - Improvement to early retirement rules etc.

TRIGGER FUNDING DEFICIT RECOVERY PLAN (FDRP)

- Increase contributions (max 25% of initial rate)
- Decrease past ancillary benefits
- Decrease future benefit accrual rate (max 5% of value)
- Decrease all past benefits (equal % for all members)

Typical Benefits Pre and Post Conversion

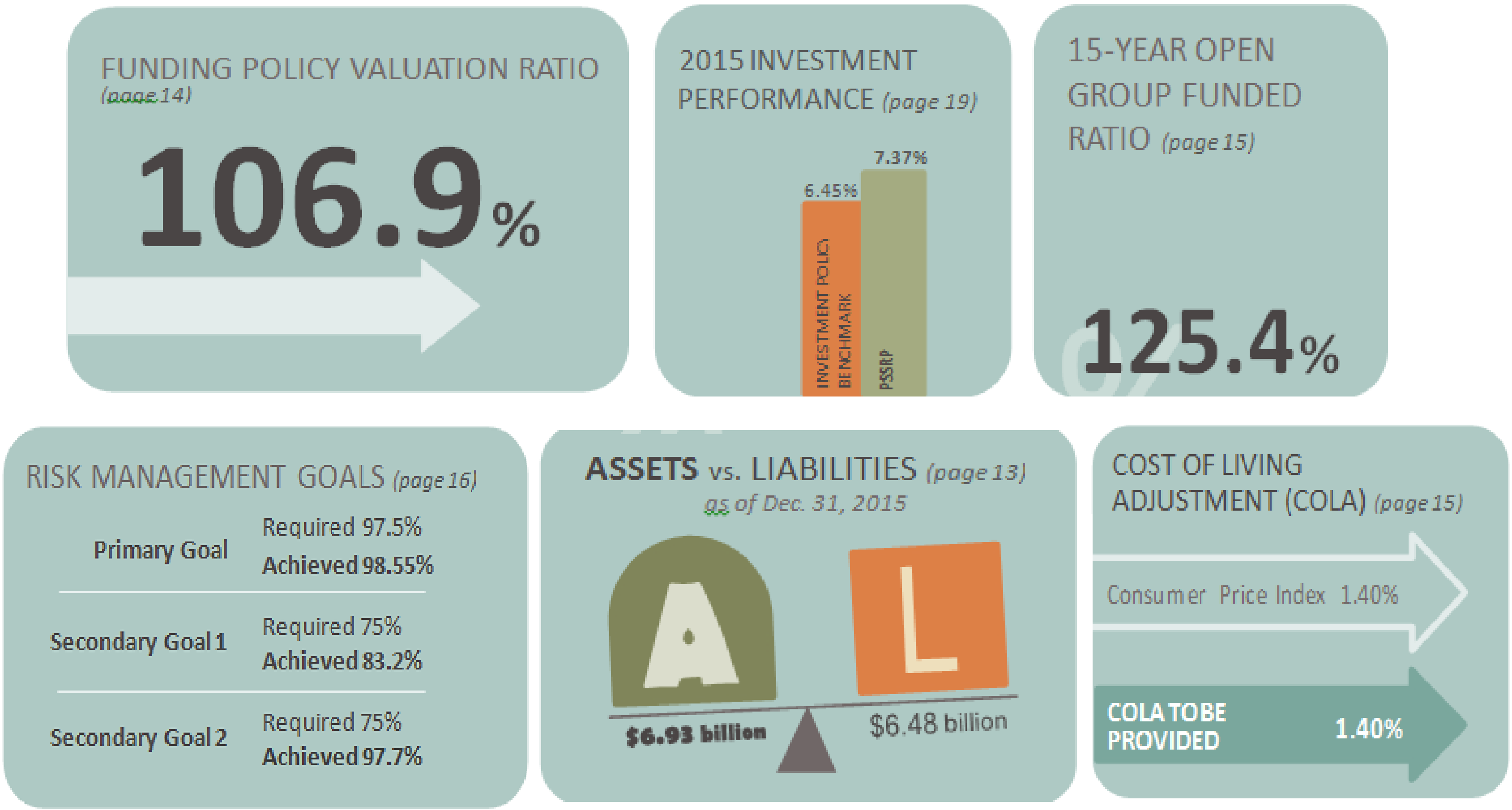
- Past accruals to date of conversion
- Future service
  - Best average five years
  - Unreduced at 60
    - Reduction 3% p.y. early
  - 1.3%/2% lifetime accrual rate plus 0.7% bridge to 65
  - Purchase of service based on 1 or 2 x E'ee contrib.
  - Termination value either E'ee contrib + interest or commuted value

- Frozen with indexing in future conditional on outcomes
- Future service
  - Indexed career average
  - Unreduced at 65
    - Reduction 5% p.y. early
  - 1.4%/2% lifetime accrual plus 0.6% bridge to 65
  - Purchase of service based on SRP value of benefits
  - Termination value is share of fund based on accrued pension

PSSRP Annual Report – 2015

Source: Annual Report 2015 Public Service Shared Risk Plan (Province of New Brunswick)

http://www2.gnb.ca/content/dam/gnb/Departments/ohr-brh/pdf/pensions/pension_plans/pssa/pssrp_ar_2015.pdf page 12



Experience to Date

- Legislation effective
- First conversions occurred July 1, 2012
- All plans we are involved with
  - Are performing above median expectation:
    - Contributions in excess normal cost for base benefits of 50% or more generate additional funds
    - Combination of asset mix changes and market returns have produced favourable results (i.e., average return to date since conversion comfortably exceeded discount rate)
    - Indexing provided up to CPI
    - Some plans able to apply funding policy steps beyond inflation protection

Illustration of funding performance if introduced prior to 2008 crash using 2008-2011 median pension fund returns in Canada

(Source: Report on Economic Statistics 1924-2015, Canadian Institute of Actuaries)

- Key assumptions (very simple calculation made)
  - December 31, 2007 funding levels : FR 106%, OFGR 125%
  - Inflation adjustment at 1.1.2009 = 2%
  - Contributions in excess of NC of Base Benefits = 1% of liabilities
  - Discount rate 4.75%, all other assumptions met
  - All figures as a % of base benefits liabilities and rounded to nearest %

Year ending	Median return	Funding Ratio	OGFR (can spend 20% of OGFR - 105%)	Amount available to spend next year	Amount Spent
2007	N/A	106%	125%	4%	n/a
2008	-15.9%	84%	103%	0%	2%
2009	16.2%	94%	113%	2%	0%
2010	10.4%	98%	117%	2%	2%
2011	0.5%	93%	111%	1%	2%

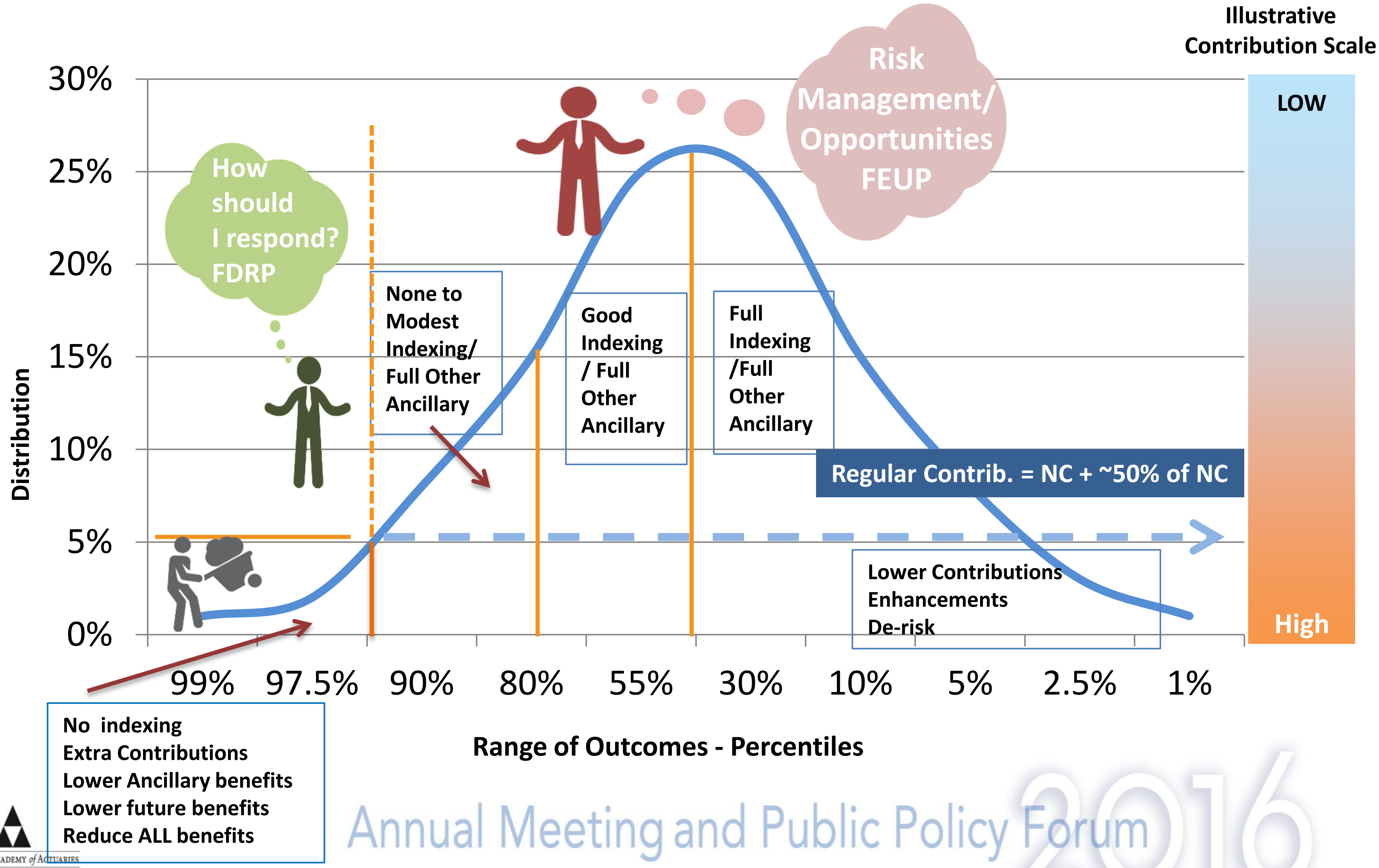
Other Considerations

- Certain additional risks to consider at inception
  - Future member population decline
  - Potential sale of business component(s) by sponsor affecting OGFR
- Important points
  - Benefit security: 97.5% test
    - Done in following circumstances only
      - At inception;
      - When permanent plan changes made;
      - Every year to determine if spending can be made or adjustments needed to investment policy or benefits
    - Only measures investment risk and benefit cash flows stochastically
    - Since contributions pre-determined, probability of benefit reduction could increase/decrease in future
    - Risk of employer bankruptcy not considered (no different than Traditional DB)

Other Canadian Developments

- 10 pension jurisdictions
  - Federal Government TBP legislation now out (First reading October 2016)
  - Target Benefit Plans (MEPPs) funded using going concern with PfAD as part of funding requirements in 2 jurisdictions
  - Municipal Plans in Quebec
  - DB Plans in Quebec
    - Eliminate solvency funding requirements
    - Use a PfAD based going concern funding approach
- Most provincial government sponsored plans have one element of benefit variability, predominantly post-retirement indexing

Left Tail Discussion – Goal is 97.5% Success Rate



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Explanation – Summary

- SRP
  - Designed to keep contributions and benefits in balance at all times
  - Risk management imposes discipline
  - Model self corrects with plan experience
  - Based on premise of under promise and over delivery
    - in setting required contributions; and
    - managing excesses/shortfalls as they occur
    - Take advantage of de-risking opportunities, if they arise
- Does not prevent plan sponsor failure but addresses what plan can and cannot deliver openly
  - Members own share of assets
- Structural Elements are universal in nature
- Operational Elements are preferential in nature

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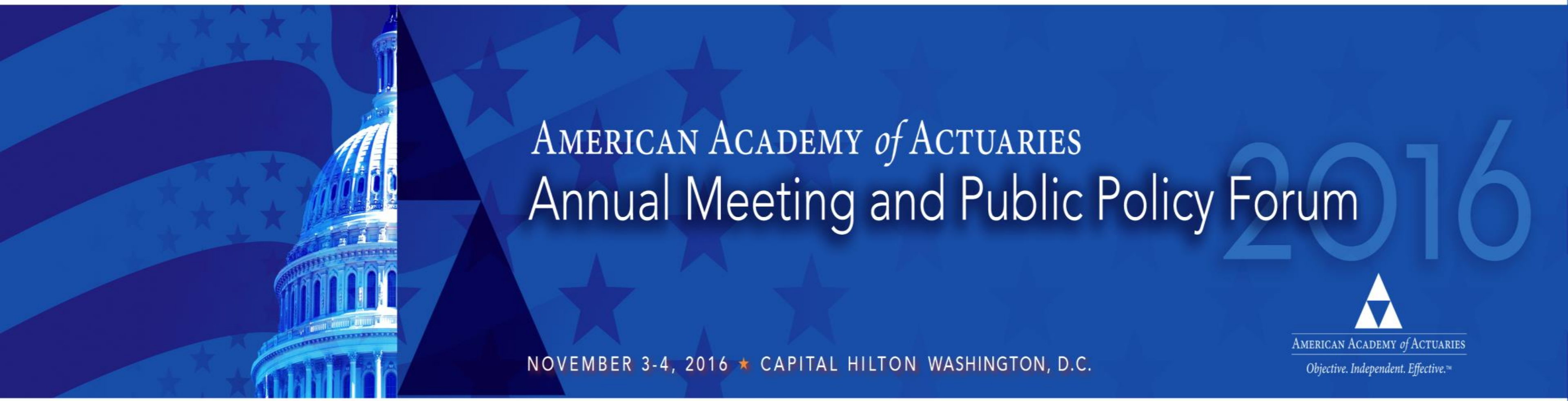
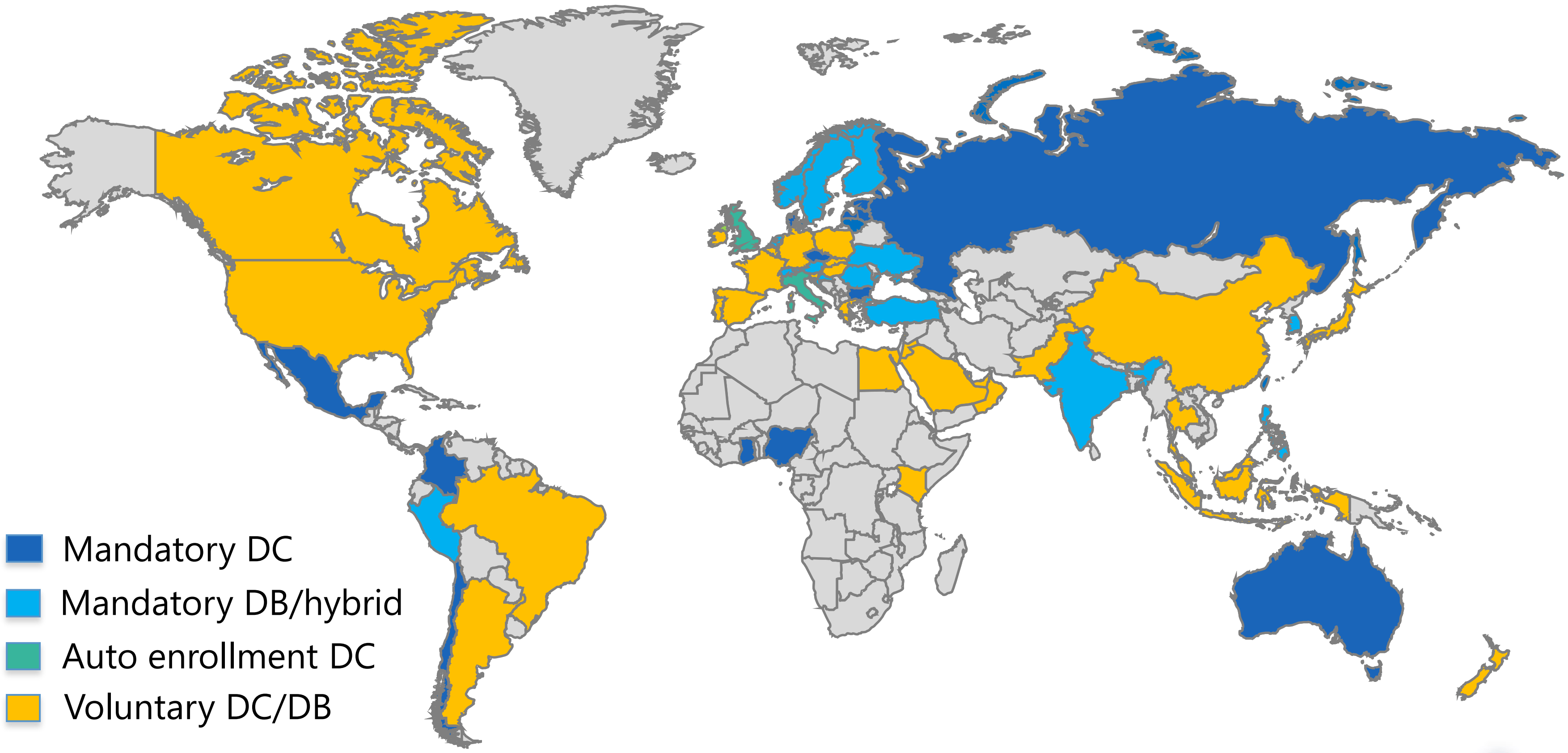


Developments in DC Plans
Stacy Schaus

DC approaching 50% of global pension assets… program structures differ by country



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As of 31 December 2015
Source: Allianz International Pensions Country Factsheets, 2016

Retirement income questions plan sponsors should ponder…assuming they desire retiree asset retention

Access

Do retirees have sufficient flexibility to tap into their DC assets?

Investments

Do they have appropriate investment choices?

Insurance

Do they have access to affordable longevity insurance?

Communication*: Do retirees understand they can remain in the plan and its advantages?*

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Retiree
Asset Retention

1. **Access**
2. Investments: Default and Core
3. Insurance

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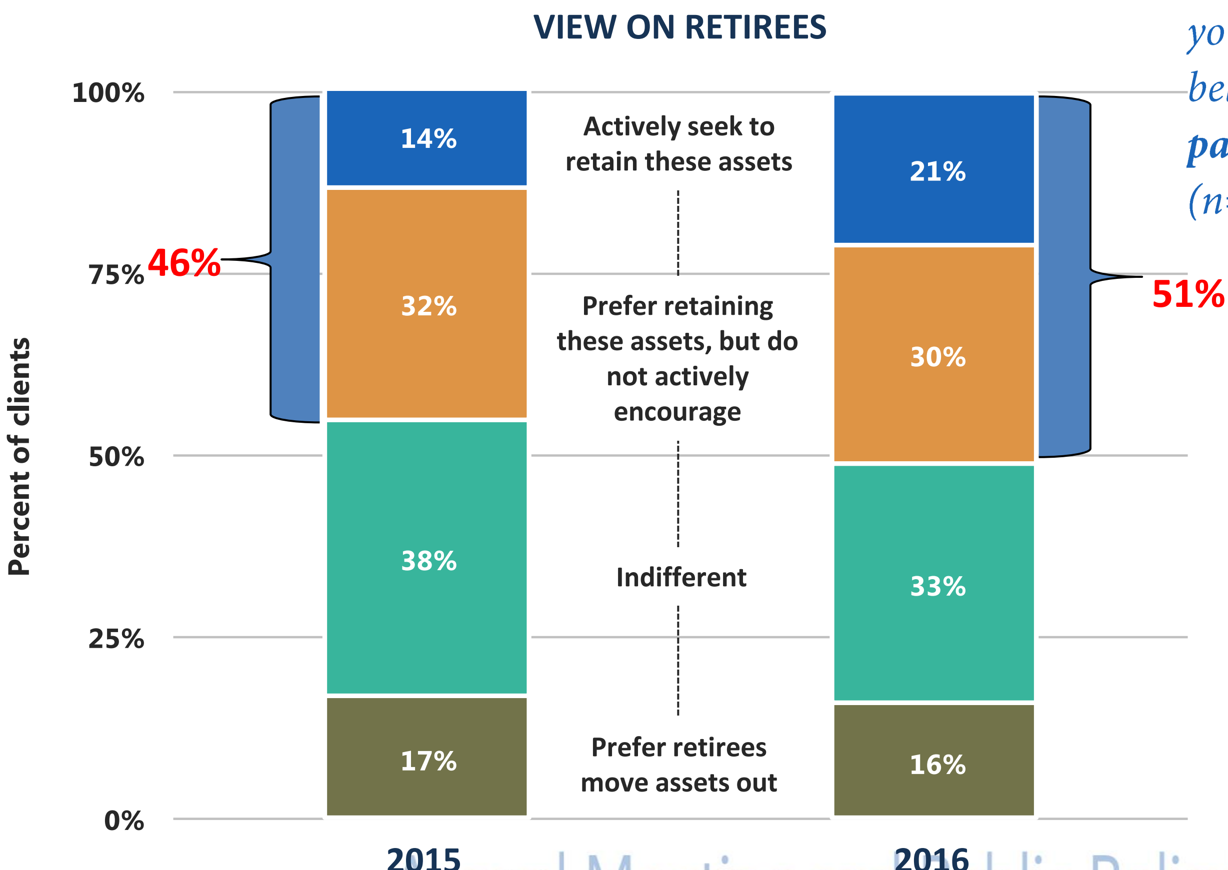
Retirement income…consultants report plan sponsor interest in asset retention increasing



***Q:** Approximately what percent of your plan sponsor clients take the below **view on retaining retired participants' assets** in their plan? (n=52)*

Sources: PIMCO DC Consulting and Trends Survey 2015 and 2016

Retiree access to DC assets may be lacking…

Two-thirds of *all plans* allow retirees to retain assets in plan…while nearly 75% of *largest plans* do so

	Percent of Plans Offering Retirement Distribution Option
Lump Sum	97.8%
Installment payments	58.1%
Partial Distributions	59.1%
Annuity	20.0%

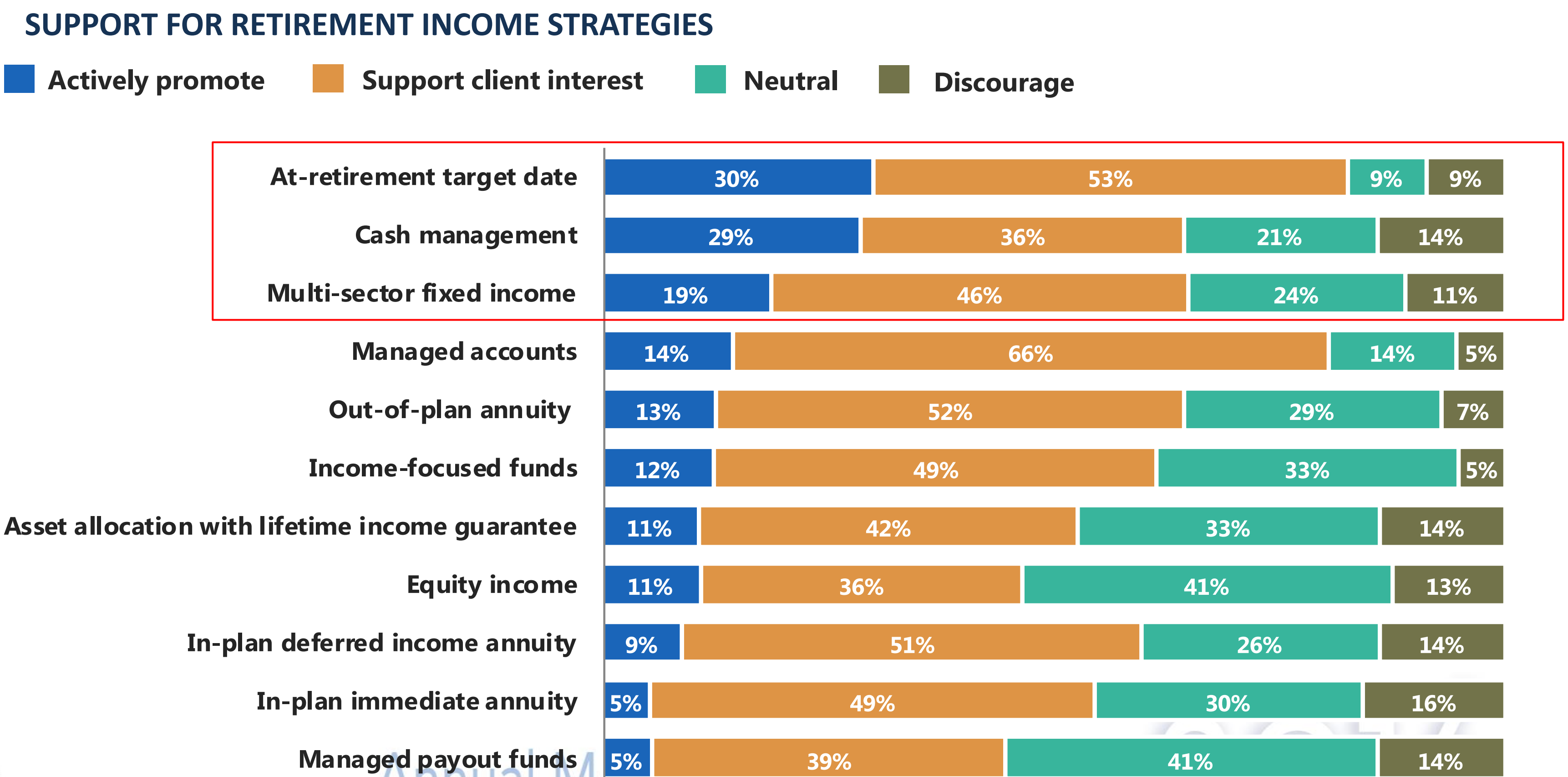
SOURCE: PSCA's 58th Annual Survey of Profit Sharing and 401(k) Plans , Reflecting 2014 Experience. Largest plans = 5,000+ participants.

Retiree Asset Retention

1. Access
2. **Investments: Default and Core**
3. Insurance

Capital market solutions top the list as most actively promoted by consultants for retirement income within DC plans…

***Q:** What is your firm's position on the use of the following **investment and insurance retirement income strategies**? (n=57)*



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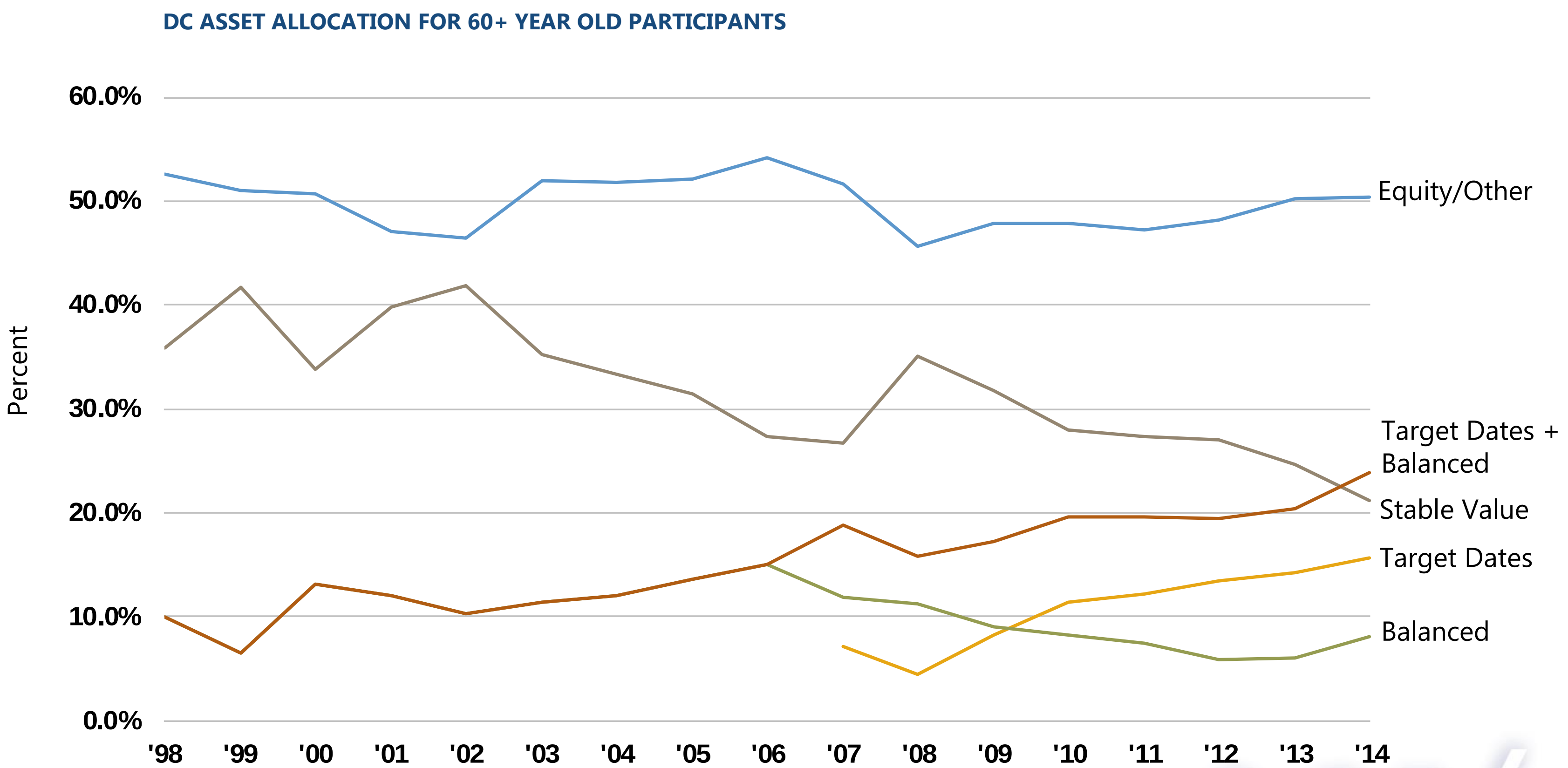
Source: PIMCO DC Consulting and Trends Survey 2016

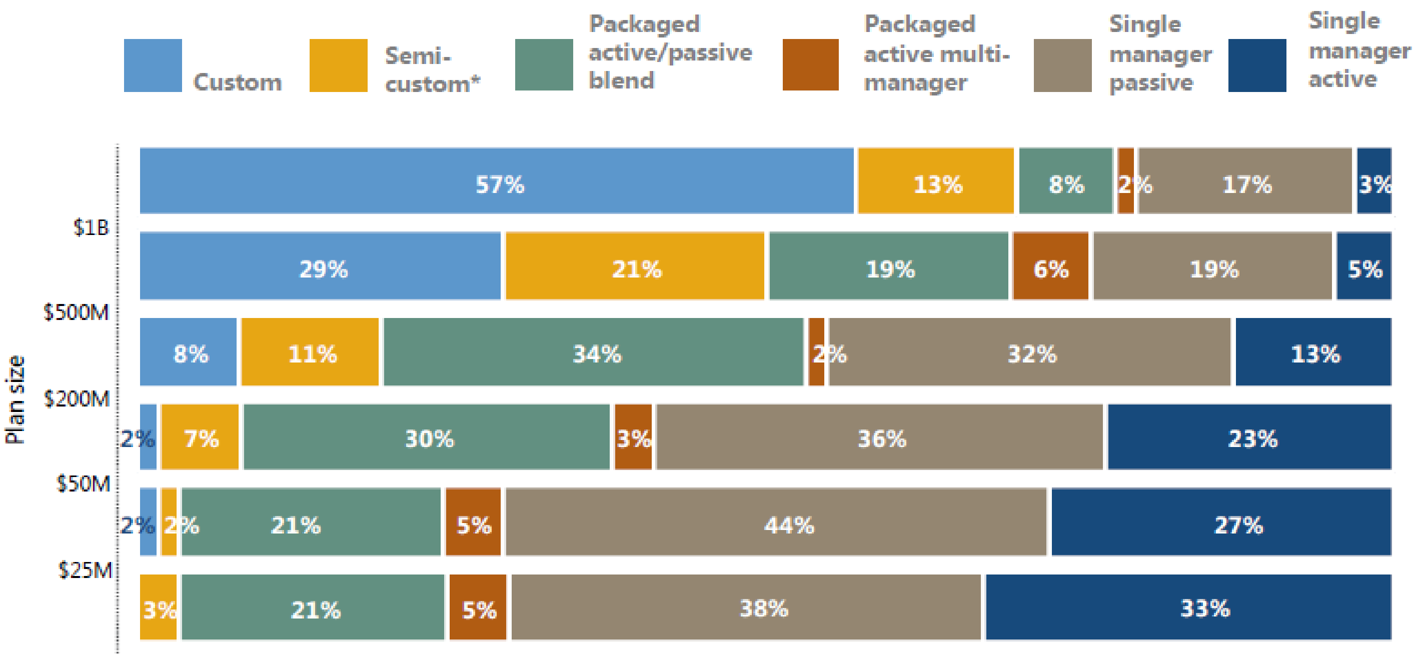
Retiree assets building in target-date strategies



SOURCE: EBRI/ICI Participant-Directed Retirement Plan Data Collection Project: 1998-2014

Type of target-date strategy varies from full custom to single manager packaged…consultants suggest approach by plan size

Target-Date Fund Structure LIKELY TO BE CHOSEN



89%

of consultants recommend **target-date funds** be used as the qualified default investment alternative (QDIA)

#1 Ranked Target-Date Objective: Maximizing asset returns while minimizing volatility ***relative to the retirement liability***

n = 64

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Source: PIMCO DC Consulting and Trends Survey 2016

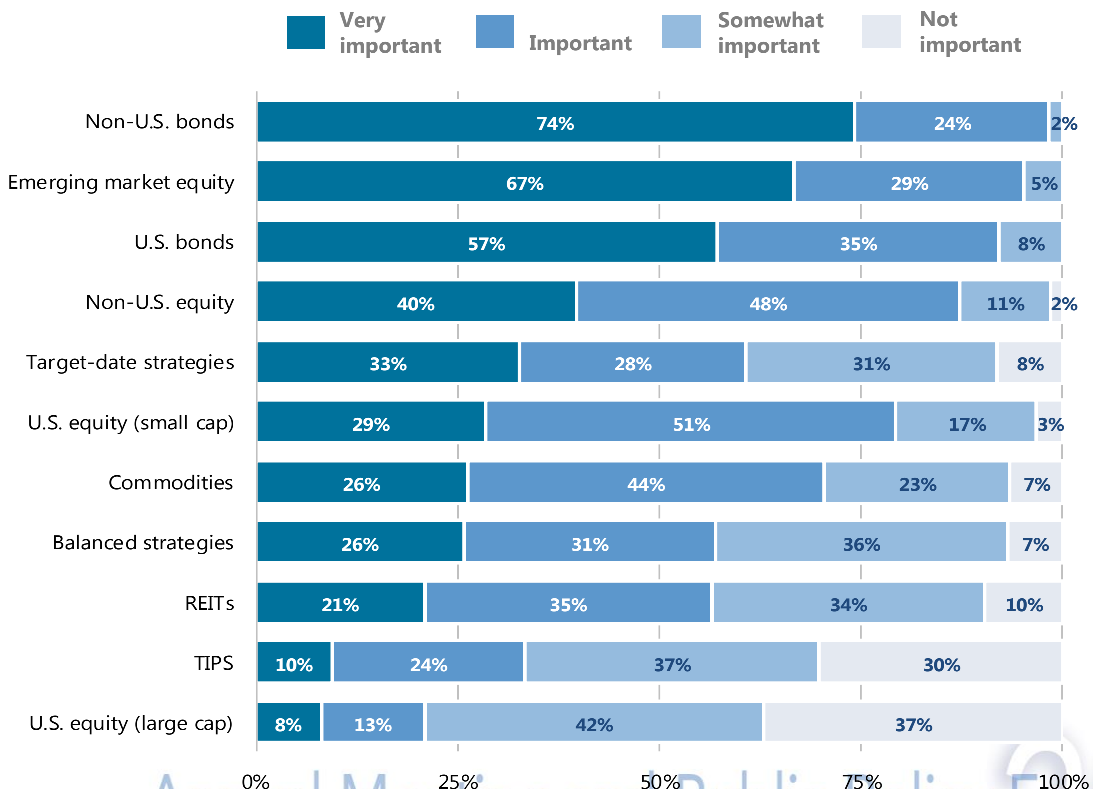
Core investments: 4 Risk Pillars and 10 Choices

		Consultant Recommendation		Considerations
CAPITAL PRESERVATION	97%	Stable Value	•	Inflation beating
	68%	Money Market	•	Money market regulations
1				
FIXED INCOME	98%	Core or Core plus	•	Yield opportunity
	68%	Income (IG, HY, MS)	•	Diversification
2				
EQUITY	92%	U.S. Large Cap	•	Active or passive
	92%	U.S. Small/Mid	•	Blend vs. stand alone
	70%	Non U.S. Developed		
6				
INFLATION-PROTECTION	67%	TIPS	•	Inflation beta
	60%	Multi-real asset	•	Volatility
1				

Source: PIMCO DC Consulting and Trends Survey 2016

Active management important in most asset classes

More than 90% of consultants believe that active management is important for non-U.S. bonds, emerging market equity strategies and U.S. bonds.



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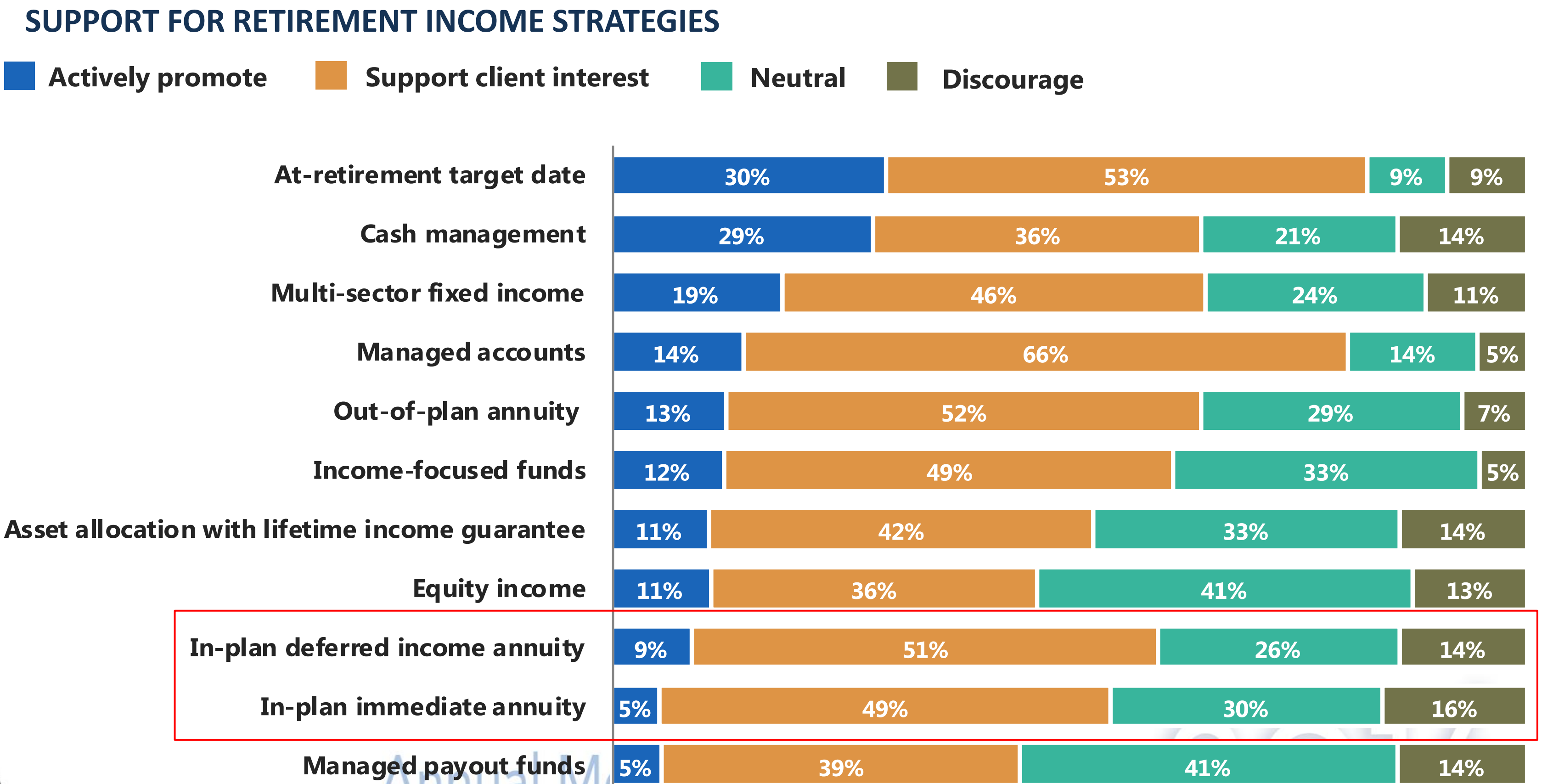
As of 31 December 2015
SOURCE: 2016 PIMCO DefinedContribution Consulting Support and Trends Survey (n=63)

Retiree
Asset Retention

1. Access
2. Investments: Default and Core
3. **Insurance**

In-plan insurance options lack active promotion by consultants

***Q:** What is your firm's position on the use of the following **investment and insurance retirement income strategies**? (n=57)*



Source: PIMCO DC Consulting and Trends Survey 2016

In-plan insurance options raise many concerns…

Q: *What are the **primary concerns** that may stop your clients from offering **in-plan insurance products** (e.g., annuities)? (n=63)*

IN-PLAN INSURANCE PRODUCT CONCERNS

Primary concerns with in-plan insurance products			
Portability	67%	Operational complexity	35%
Cost	63%	Communication complexity	27%
Insufficient government support (e.g., safe harbor)	62%	Monitoring/benchmarking	25%
Perception of added liability	40%	Low interest rate environment	16%
Insurance company default risk	37%	Transparency	14%
Lack of liquidity and control	37%	Selection criteria unclear	10%
Lack of participant demand	35%	Lack of insurance company commitment	3%

Source: PIMCO DC Consulting and Trends Survey 2016

Out-of-Plan insurance options may address many concerns and offer significant benefits to participants…

Decision Factor	In-Plan Accumulation	Out-of-plan
Institutional pricing	Yes	Yes

As of 31 December 2015
SOURCE: PIMCO, and Hueler Companies, Inc.

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DC plan design will evolve to encourage retiree asset retention

Plan sponsors should consider:

- Access: do they offer sufficient distribution flexibility to retirees?
- Investments: do they offer appropriate target-date strategies, capital preservation and income strategies?
- Insurance: do they offer access to institutionally priced insurance programs?

***Communication**: Help retirees understand why they may be best served by retaining their assets in plan.*

Appendix: Background on PIMCO's 10th Annual *Defined Contribution Consulting Support and Trends Survey*

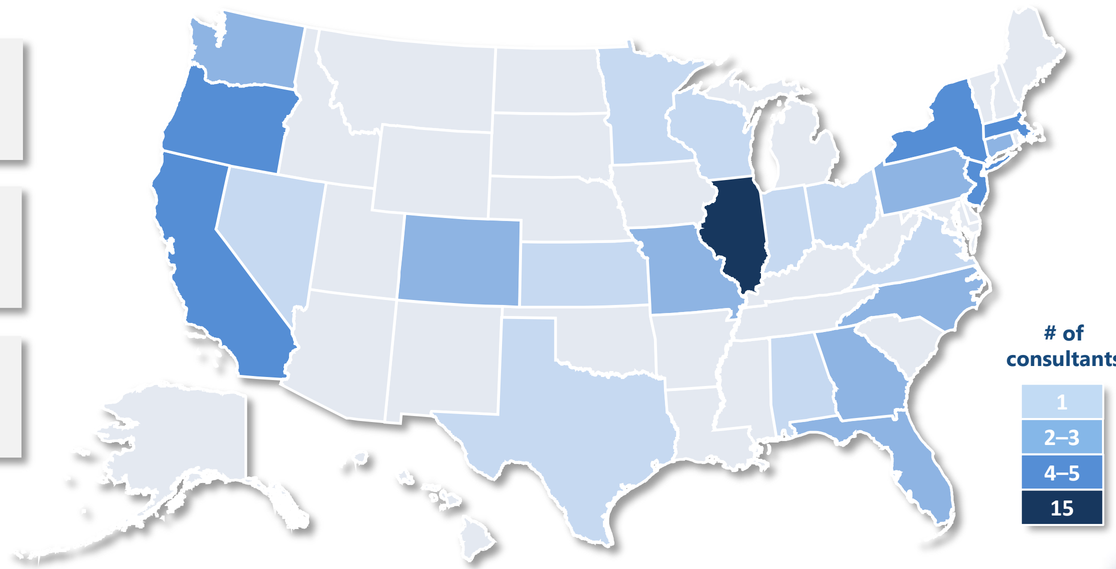
PIMCO's DC Practice has prepared the 10th annual ***Defined Contribution Consulting Support and Trends Survey*** to help plan sponsors understand the breadth of views and consulting services available within the DC marketplace. Our 2016 survey captures data, trends and opinions from **66 consulting firms** across the U.S., which serve over **11,000 clients** with aggregate DC assets in excess of **$4.2 trillion**.

SURVEY PARTICIPANTS

66 DC consultants and advisors from 23 states

11K+ DC plan sponsor clients represented

$4.2T+ In client DC assets



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As of 1 January 2016

Core investments: consultants suggest 10 investment strategies across four primary risk pillars…primarily actively managed

Q: What is the optimal number of core menu options for each of these asset categories? (n=62)

	CAPITAL PRESERVATION	FIXED INCOME	EQUITY	INFLATION-PROTECTION	ALTERNATIVES
Optimal # of options	1	2	6	1	0
% recommending at least one	98%	100%	100%	84%	27%
Most recommended strategies (in order)					
Active only	80%	37%	2%	37%	44%
Passive only	2%	0%	2%	10%	0%
Active/passive blend	19%	25%	41%	42%	5%
Multiple active & passive	0%	19%	34%	3%	2%
Mirrored active & passive	0%	17%	20%	0%	2%

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Annual Meeting and Public Policy Forum 2016

Source: PIMCO DC Consulting and Trends Survey 2016

Biography

Stacy Schaus

CFP®, DC Practice Leader, PIMCO

- Ms. Schaus is an executive vice president in the Newport Beach office and leads PIMCO's Defined Contribution Practice working primarily with plan sponsors and consultants. She has written extensively on defined contribution issues, including the regular publication PIMCO DC Dialogue™ and her 2010 book, Designing Successful Target-Date Strategies for Defined Contribution Plans. Prior to joining PIMCO in 2006, she was a founder and president of Hewitt Financial Services, which includes DC investment consulting and research as well as brokerage and personal finance.
- She is the founding chair for the Defined Contribution Institutional Investment Association, serves on the executive committee of the Employee Benefit Research Institute and served as a Financial Planning Association board member. She has 32 years of investment experience and holds an MBA from the Stern School of Business at New York University and an undergraduate degree from the University of California, Santa Barbara.

About the PIMCO DC Practice

The PIMCO DC Practice is based in Newport Beach and is dedicated to promoting effective DC plan design and innovative retirement solutions. Our team is pleased to support our clients and broader community by sharing ideas and developments in DC plans in the hopes of fostering a more secure financial future for employees of corporations, not-for-profits, governments and other organizations.

If you have a topic you'd like to discuss, please contact your PIMCO representative or email us at pimcodcpractice@pimco.com. We're interested in your ideas and feedback!

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Questions?