Public Pension Plans: Academic Perspective

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Outline

- Current Environment/Keep Perspective
- DB, DC, or Hybrid?
- Benefit Adequacy Study
- Benefit Design Tools

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Current Environment

- Revenue issues generating budget cuts from every aspect
- Unemployment and cost reduction in the private sector attracting attention to public sector benefits
- Legislatures/Governing Bodies under pressure to "do something" in the wake of the economic downturn and increased scrutiny in the media

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Current Environment

- Wisconsin grabbed national spotlight
  - Public sector employees characterized as
    - Overpaid
    - Getting generous pension and health benefits
    - Not feeling the pain that the private sector feels
  - Defined benefit outcomes
    - Collective bargaining for pensions curtailed
    - Member contributions increased
    - Retirement System was already well funded

Current Environment - Pennsylvania

- Economic recovery is slow
- Pension funds lag economic cycles
- 2010 Pension Reform
  - Phasing in higher contribution rates
  - Increased member contribution rates for new hires
  - 5-year vesting raised to 10-year
- More ahead?

Current Environment

- Don't Panic

- This is a good time to articulate sound benefit policies

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Keep Perspective

- Market cycles go both ways
  - 1990s Decade
    - Irrational exuberance (wasn't it fun?)
    - Market gains galore
    - Good times didn't last forever
  - 2000s Decade
    - Began and ended with severe downturns
    - May be our "lost decade"
    - Bad times won't last forever

Keep Perspective

- Objectives of retirement benefit programs
  - Provide meaningful benefits to members
  - Secure benefits with assets in trust
  - Establish sustainable plan costs
    - Enough to provide benefit promised
    - Reasonable when compared to other programs
    - Intergenerational equity – level as a percent of pay
  - Share risks between members and employer

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DB, DC, or Hybrid?

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DB, DC, or Hybrid?

- Defined Benefit (DB), Defined Contribution (DC), and Hybrid arrangements handle the different objectives differently
- Each can be designed to provide meaningful benefits to members and be secured with assets in a trust
- How do they compare on cost/risk factors?

DB, DC, Hybrid Cost Factors

- Assuming same level of retirement benefit, how do the different arrangements handle annual cost (contribution) factors?

Cost Factor	DB	DC	Hybrid
Amount	Lowest	Highest	Middle
Predictability	Lowest	Highest	Middle
Volatility	Highest	Lowest	Middle

DB, DC, Hybrid Risk Factors

- Under different arrangements who bears the risk?

Risk Factor	DB	DC	Hybrid
Investment	Employer	Employee	Both
Longevity	Employer	Employee	Both
Inflation	Both	Employee	Both

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Benefit Adequacy Study

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Board Proactive Solutions

- Benefit Adequacy Study
  - Compare current benefits to peers
  - Establish goals and objectives
  - Measure delivery of benefits through DB, DC, or Hybrid
    - Individual replacement ratios
    - Level of annual contributions
    - Volatility of annual contributions

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Benefit Adequacy Case Study

- Statewide plan covering state and local uniformed and civilian members (no teachers)
- Educational information on plan designs in the public sector
- Identified 20 peer plans based on
  - Membership type and size
  - Asset size
  - Benefit complexity
  - Similar Social Security participation
  - Geographical location

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Benefit Adequacy Case Study

System	Membership Size Active	Membership Size Retired	Assets ($Bill.)	Membership Coverage Description	Social Security
Plan 1	228,000	93,000	$ 24.0	State Employees, Teachers, Political Sub	yes
Plan 2	190,000	79,000	$ 39.0	State Ees, Troopers, Teachers, Municipal Ees and Judges	no
Plan 3	75,293	35,579	$ 13.0	State Employees (including Public Safety)	yes
Plan 4	67,000	36,000	$ 11.0	State, Teachers, Political Sub, P&F, Judges, Legislative	G-yes/PF-no
Plan 5	67,000	31,000	$ 10.0	State, Teachers, Political sub, P&F	yes
Plan 6	220,000	60,000	$ 12.0	State and Political Sub Ees (except Pol. Sub. P&F)	yes
Plan 7	176,000	87,000	$ 21.0	State, Pol. Sub Ees and Public Safety (Some Pol. Sub P&F Excluded)	yes
Plan 8	62,000	38,000	$ 9.0	State Ees, State Police, Corrections, Legislators, Judges	no
Plan 9	167,000	76,000	$ 20.0	State Ees, State Patrol, Pol. Sub Ees, Teachers and Legislators (4 separate plans)	yes
Plan 10	28,000	17,000	$ 4.7	State and Local General employees	yes
Plan 11	10,000	400	$ 0.6	State, County General Employees, State Patrol and Judges	yes
Plan 12	118,000	42,000	$ 26.0	General and Teachers in one plan P&F in another	no
Plan 13	51,000	23,000	$ 5.0	State and Local Ees, Teachers, P&F	g-yes/pf-no
Plan 14	19,000	7,000	$ 1.6	State and Local Ees, P&F	yes
Plan 15	350,000	169,000	$ 70.0	State and Local Ees, Local Public Safety	no
Plan 16	35,000	22,000	$ 6.0	State Ees, Teachers; Local Ees and Local P&F	yes
Plan 17	213,000	98,000	$ 31.0	State Ees, Teachers, Political Subdivisions	yes
Plan 18	106,000	43,000	$ 16.0	State and Local Ees; Public Safety; Fire; Judges; Legislative	yes
Plan 19	15,000	6,000	$ 1.6	State Ees, Judges, State Law Enforcement	yes
Plan 20	40,000	20,000	$ 5.0	State and Local Eesl, Police and Fire and Teachers	yes

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Benefit Adequacy Case Study

- Based on a simple survey, Board selected 5 peer plans of the 20 to further study, comparing:
  - Major plan provisions
  - Rates of benefit accrual
  - Long-term costs (based on client's valuation assumptions and member data)
  - Replacement Ratios for sample members

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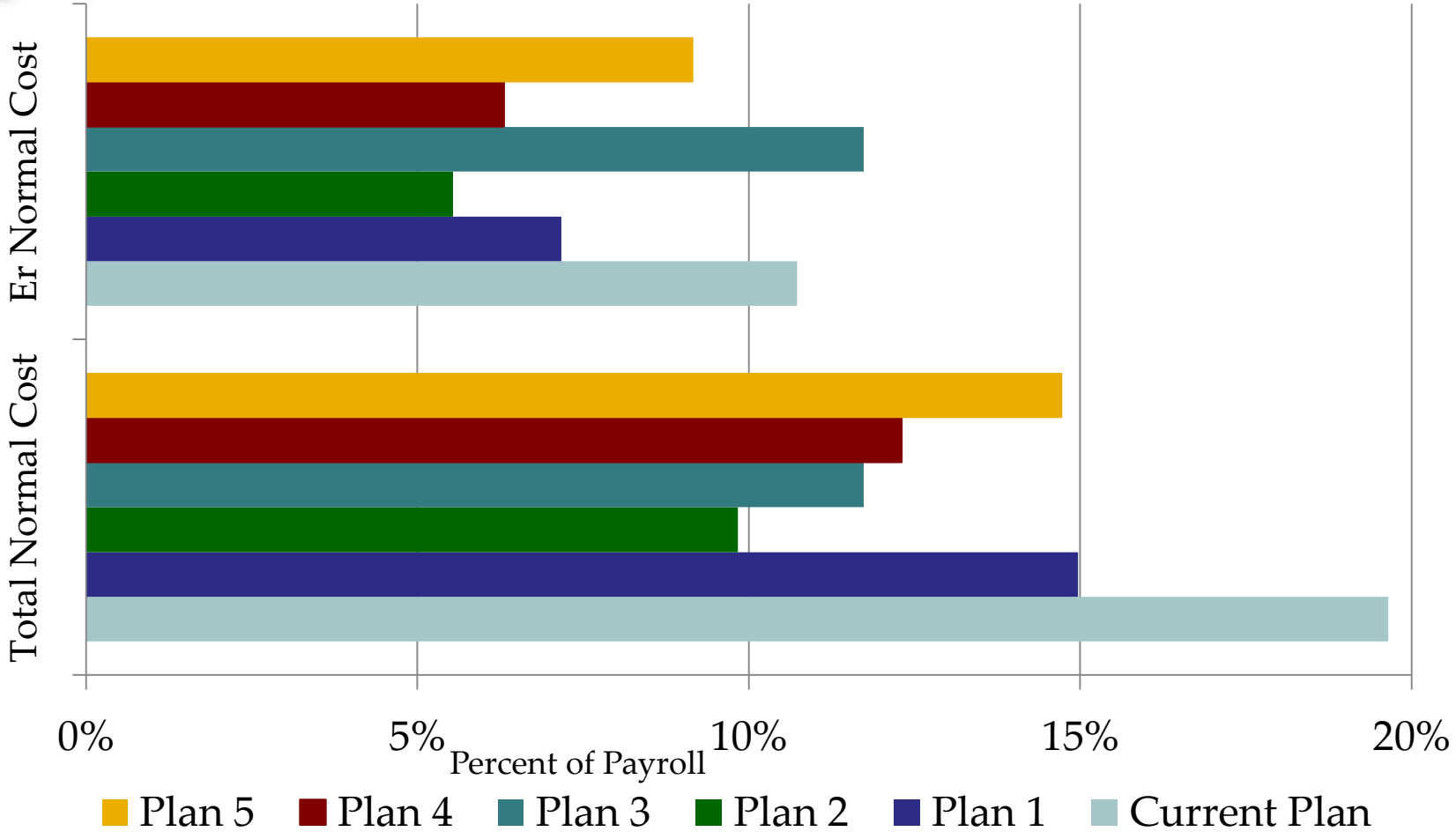
Benefit Adequacy Case Study Cost Comparison*



* Based on Client member data and assumptions

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Benefit Adequacy Case Study

- Worked with Board to establish goals and objectives
- The importance of this step cannot be over-emphasized
- From the goals and objectives an "Ideal Plan" design was formed
- Different sets of goals and objectives could yield different "Ideal Plan" designs

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Examples of Goals and Objectives

- Targeting a specific career length (such as 25 or 30 years of service)
- Establishing a minimum retirement age
- Desired additional plan features (Hybrid, Early Retirement, Casualty Benefits, COLAs, Etc)
- Targeting a specific Replacement Ratio for a career member (with or without Soc. Sec.)
- Targeting a specific long-term cost
- Establishing cost sharing ratios

Additional Advantages

- Study can be used to justify a specific level of benefits
- Future proposed plan changes can be tested against the goals and objectives
- Can be used to identify provisions that may be excessive while defending provisions that are appropriate
- Can be provided to Legislature/governing body as an educational tool

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Benefit Design Tools

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Design Objectives

- Determine benefit for a full career employee
- Need a working definition of "full career"
- Desired level of retirement benefit
  - Replacement Ratio (next slide)
- May want to reflect post-retirement risks
  - We consider investment and mortality risks
  - Other major risks: inflation, health care, etc.

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Replacement Ratios

- The Replacement Ratio is the ratio of

  Retirement Income / Income Before Retirement

- Retirement Income
  - At retirement date
  - Includes DB and DC (may also include SS)
- Income Before Retirement
  - Pay in last year worked before retirement
- May or may not reflect taxes (we don't here)

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Sample Objectives

- Hypothetical Design Objectives
  - "Career Length" means 30 years
  - Target Replacement Ratio of 60%

Sample Current DB Design

- Retirement Eligibility
  - Age 60 with 10 Years or Service or
  - Age 50 with 25 Years of Service
- Benefit Amount
  - 2.0% x Service x Final Average Pay (FAP)
  - FAP is 3-year average
- Vesting
  - 100% vested after 5 Years of Service

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Replacement Ratio Questions

- How does the current DB design compare to objectives?
- How does the Replacement Ratio "accrue" over time?
- What effect does Retirement Eligibility have?
- What effect does Vesting have?

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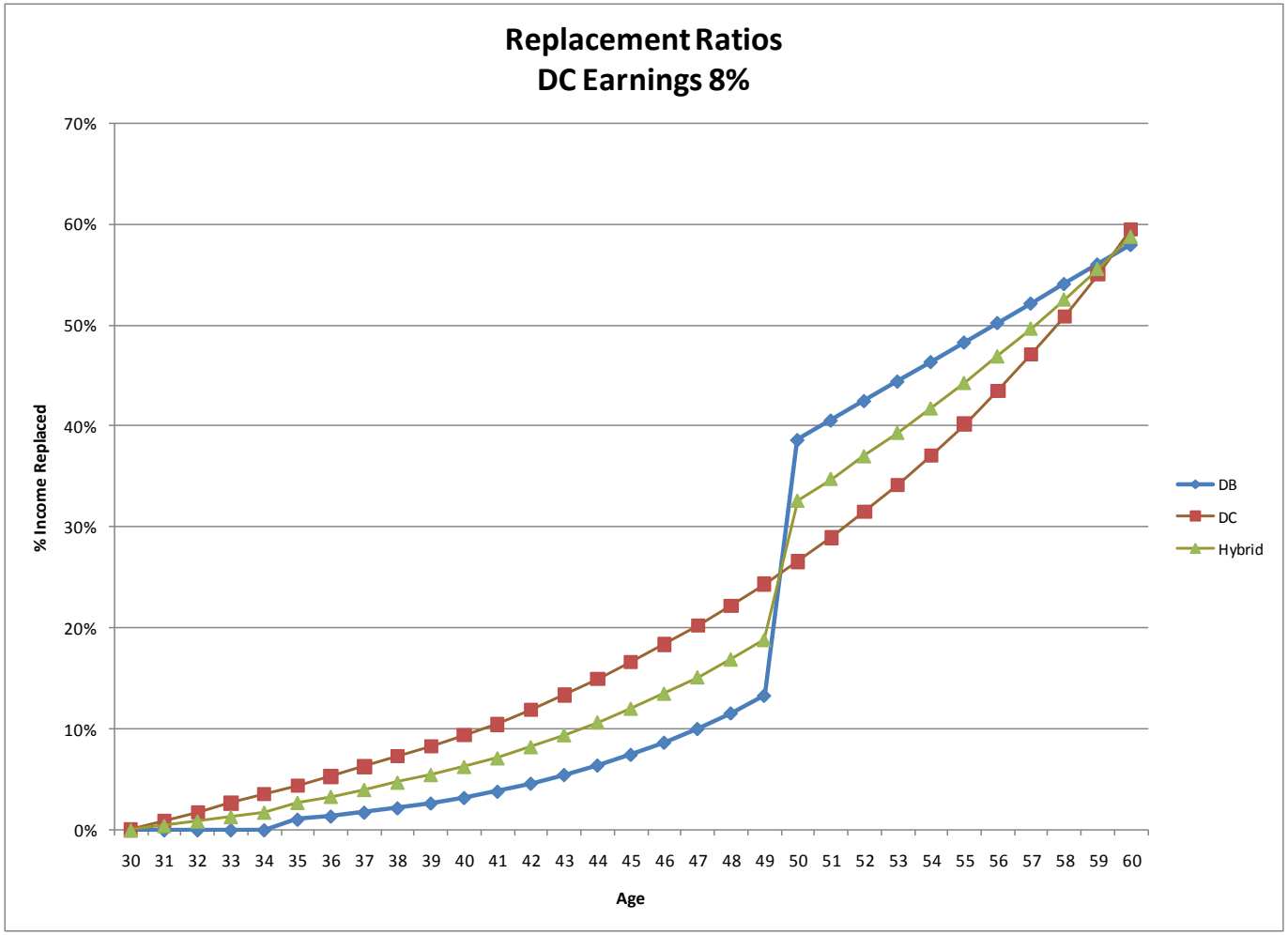
Replacement Ratio Questions

- How do DB, DC, and Hybrid accrual compare over time?
- Design DC plan to hit the same target replacement ratio at age 60 for full career
- Design Hybrid to be 50/50 mix DB/DC
- There is a whole spectrum of other options available

Replacement Ratio Accruals



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Replacement Ratio Observations

- DB accruals are zero before vesting
- DB accruals less valuable at early ages, more valuable at later ages
- DB unreduced Early Retirement at 50 & 20
- DC accruals more valuable at early ages – benefits those who leave early
- DC accruals may also have vesting period
- Hybrid splits the difference

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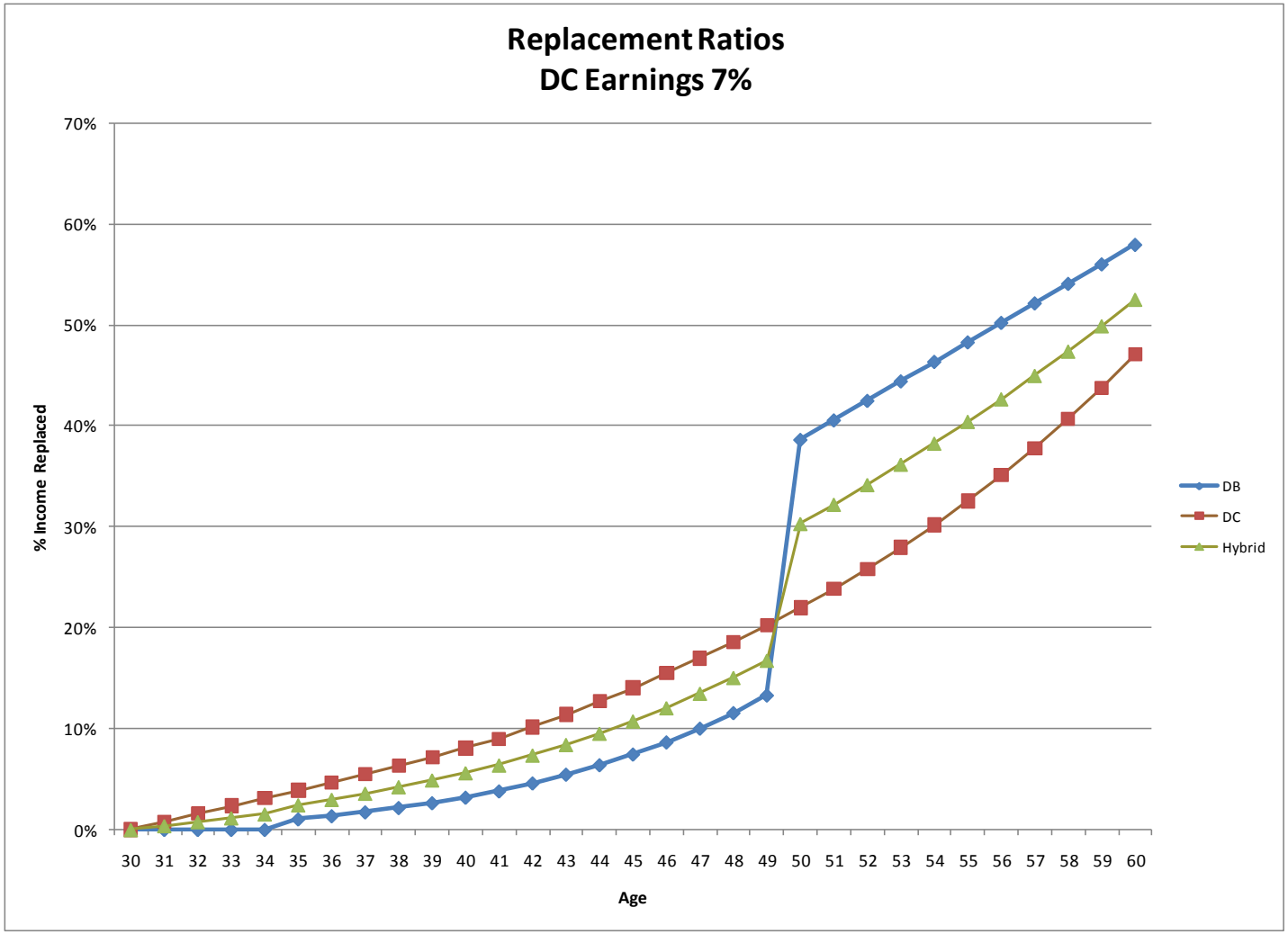
Investment Risk

- DB benefits don't change with investment return
- DC balance depends heavily upon investment return
- If assumed rate of return in 8% per year, what happens if returns are 7% per year or 9% per year?

Accruals with 7% DC Return



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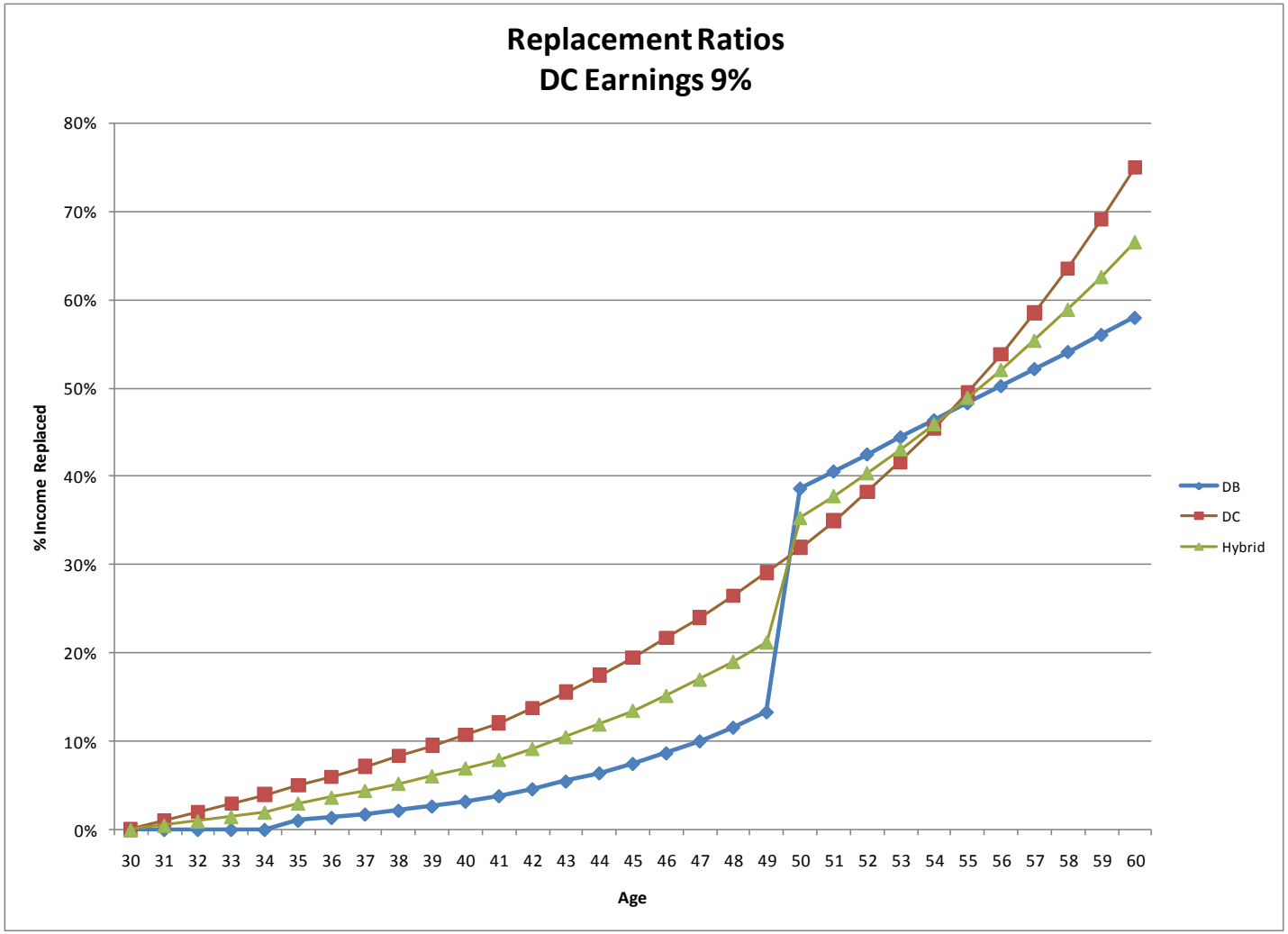
Accruals with 9% DC Return



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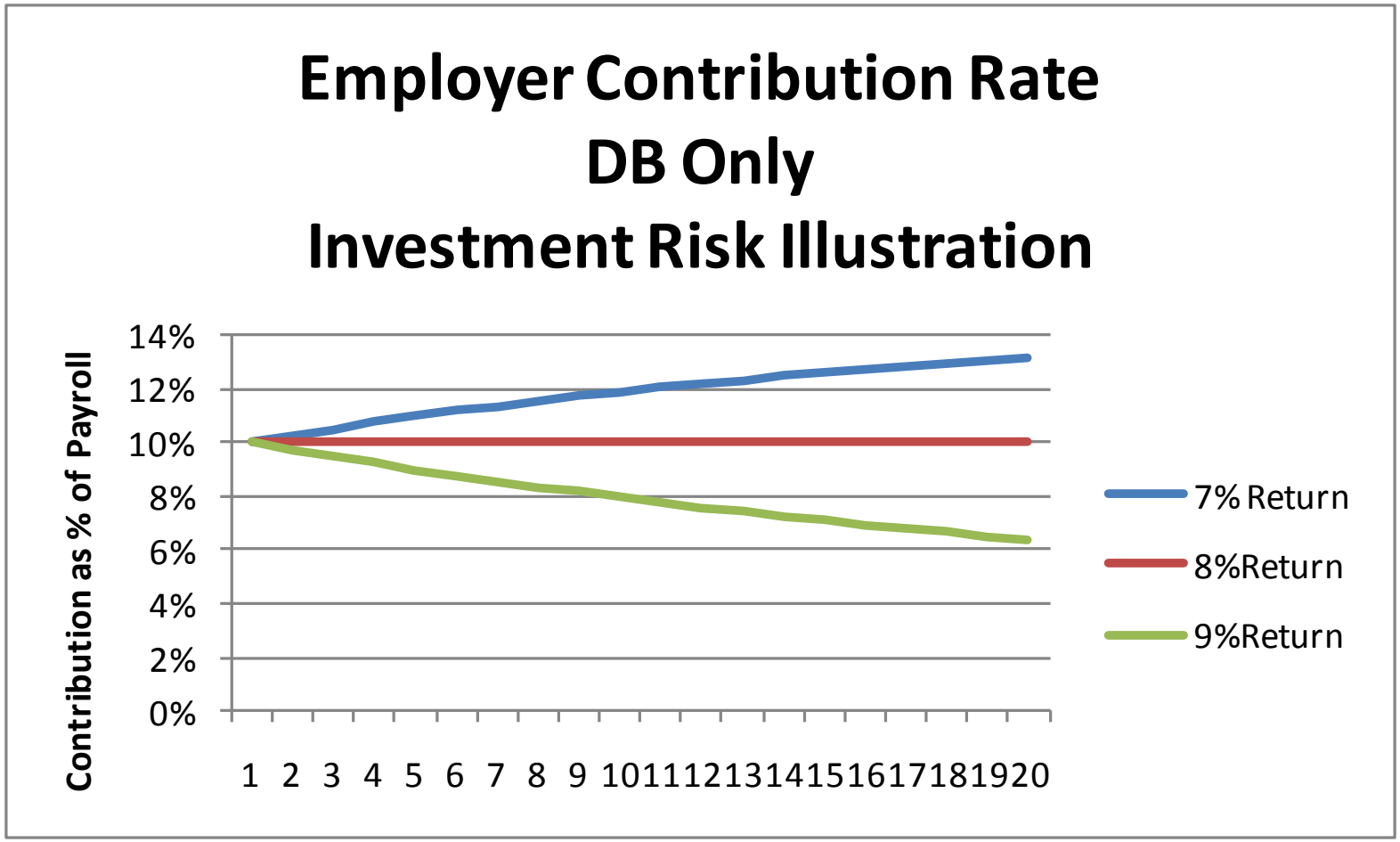
Impact on Benefits

- DC participants may exceed or fall short of target – even after retirement!
- Several studies have shown that DB investment return can outpace DC return by as much as 1% per year
- In design phase, may want to incorporate this difference - will need higher DC contribution rate

What about Employer Cost?

- For comparison, we assume DB plan funding as a level percent of payroll, entry age normal
- DB Normal Cost slightly lower than DC contribution needed for same target benefit
- Assume DB plan 100% funded
- What if assets earn 7%, 8% (assumed), or 9% per year

Employer Cost for DB Only



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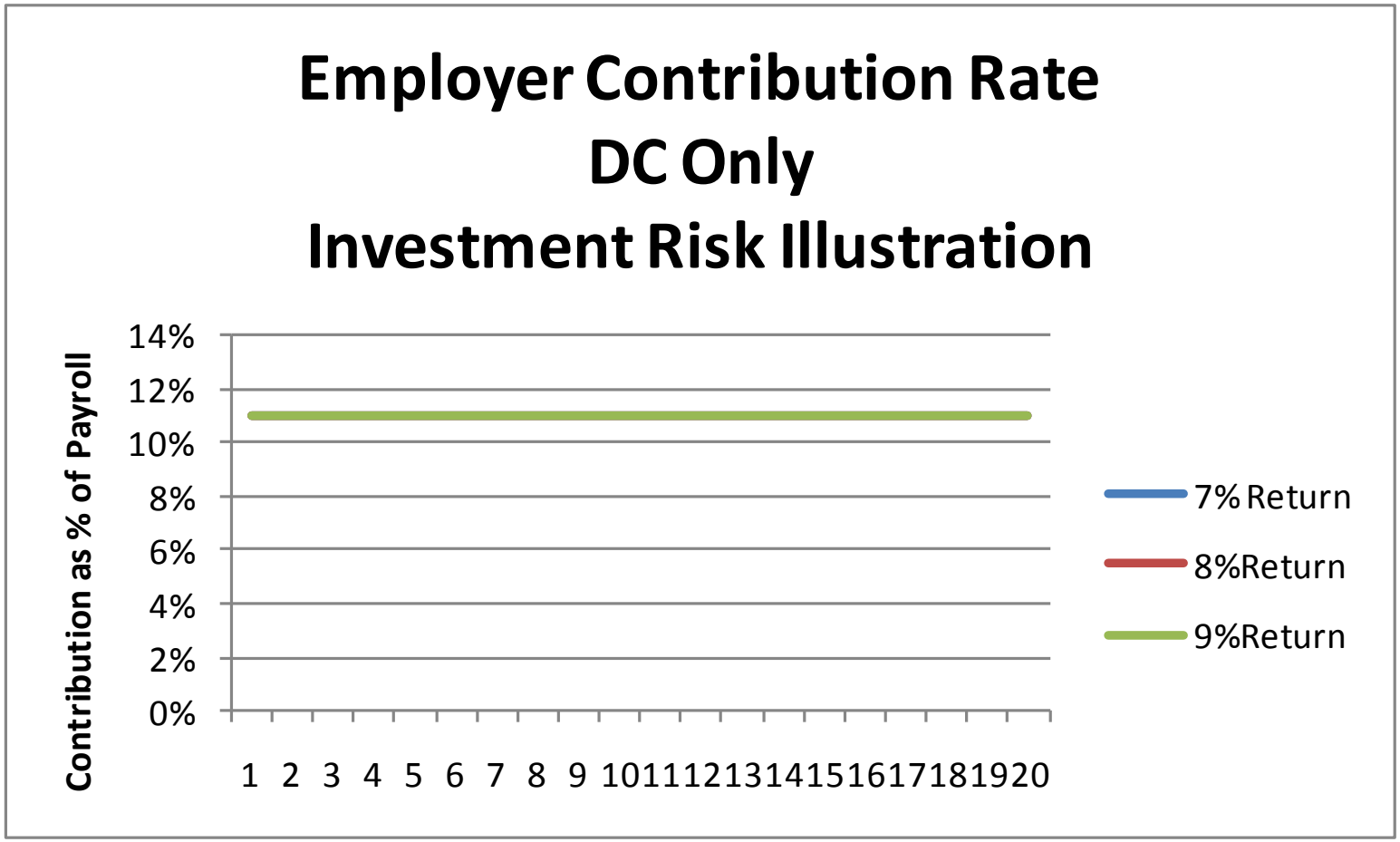
Employer Cost for DC Only



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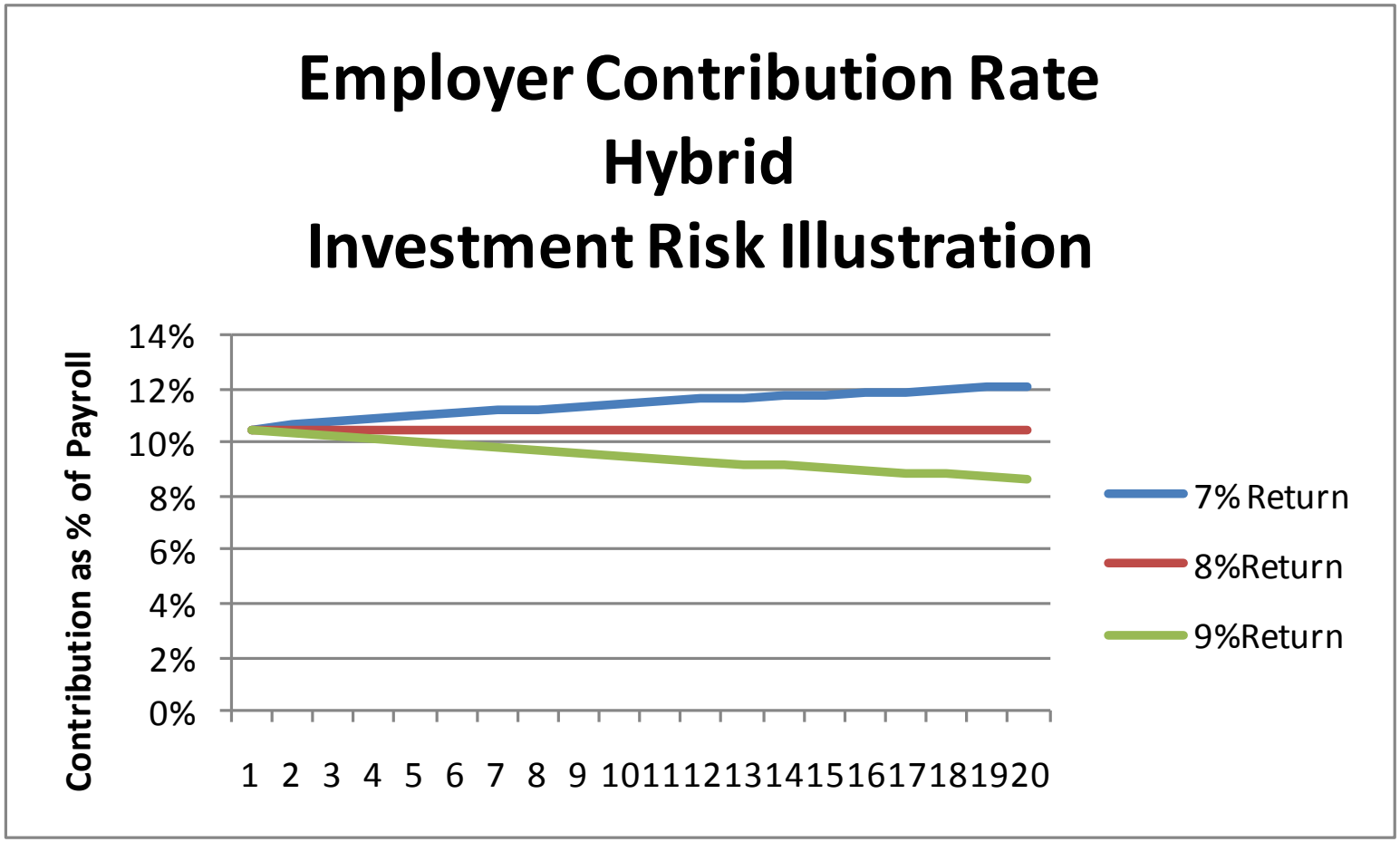
Employer Cost for Hybrid



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Other Design Issues

- Critical Objective to Identify Up Front: How much Investment Risk on Employer and how much on Employee?
- Similar analysis can be modeled for other risk: longevity, timing of retirement, early termination, inflation, etc
- Other plan features can require more careful analysis: DROPs, DB Service Purchase, etc

Other Design Issue

- Transition from old to new plan
  - Legal protection of benefits?
  - Grandfathering?
  - Transition dates influencing behavior?
  - Unfunded DB liability still needs financing – may be a long time before savings or reduced volatility realized

Summary

- Current environment demanding a look at benefits
- Retirement Boards are well suited to be the source of accurate, balanced information
- The best process starts with establishing clear objectives up front
- Turn “crisis” into opportunity to educate, inform, and lead

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Thank You

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