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Reforming Public Service Pensions

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Caribbean Actuarial Association Conference:
"*Changing Perspectives*"

Paul Christiani
Toronto

Topics

1. Global Challenges
2. Cost Drivers and Assumption Setting
3. Financing Approaches
4. Plan Design Trends and Practices

At the heart of every pension system there is an economic engine to make pensions affordable …

Pay-as-you-go

- Relies on new contributors/taxpayers to pay for the benefits of retired members
- Vulnerable to increases in the ratio of retired members to contributors

Full funding

- Relies on a pension fund, productively invested, to pay for the benefits of retired members
- Vulnerable to low interest rates, disappointing stock market performance, etc.

Most *retirement systems* use a combination of the two

Some *public sector plans* use a combination of the two

As pension plans mature, both approaches have their problems …

Pay-as-you-go	–	Costs increase to very high levels, but in a gradual and predictable way
Full funding	–	Risks increase to very high levels; contribution rates move in a wider and wider range about a (theoretically) stable mid-point

All retirement systems are exposed to large risks …

Longevity risk	–	Affects all plans; DB (funded or unfunded) and DC
Investment risk	–	Affects funded DB plans and DC plans
Fertility risk	–	Affects cost of pay-as-you-go DB plans, riskiness of fully funded DB plans and perhaps DC plans through investment returns

Some risks are well understood; most are not

The perfect storm …

- Today's combination of low fertility, low interest rates and improving longevity is the most difficult one for retirement systems to endure
- Most public sector plans are worried about cost and sustainability in this environment
- They also worry about their ability to adapt to a changing environment in a politically acceptable way
- If they could go back and do things again, there are several things they would do differently

The lessons of the past …

1. Bad accounting = bad decisions
2. When costs and/or risks are underestimated, benefits become too rich and plans become unsustainable as they mature
3. The link between pension cost and employee compensation is an important one
4. Public sector pension plans are difficult to change abruptly; consequently you must anticipate problems, not react to them
5. Since workplace pressures are not easily seen 10 years in advance, it is dangerous to use pension plans to encourage employees to stay at some ages and leave at others
6. The risks eventually become large and must be shared with active and retired members in transparent, well understood ways

Conclusions of a World Bank Discussion Paper

"The civil service pension schemes tend to be more generous and less financially viable than those covering the rest of the formal sector. Taking the scope of coverage into account, they are also more expensive. Costs have spiraled in many countries as the schemes have matured and past promises have come due. Most projections show that the situation will worsen without reform, raising concerns about possible crowding out of important social programmes.

Reforms to reduce pension liabilities include:

- raising pensionable age (but with care for the consequences for pension liabilities and public-sector pay);
- reducing the replacement rate targets;
- extending averaging periods in the benefit formula;
- indexing benefits in payment to prices rather than civil-service earnings;
- introducing or increasing member contributions.

These reforms are probably best undertaken as part of an overall review of civil-service terms and conditions that takes into account all sources of remuneration, often called the 'total compensation' approach. In practice this has been rare, however."

Source: Civil Service Pension Schemes Around the World
World Bank Discussion Paper – May, 2006

Cost Drivers and Assumption Setting

Sample Pension Plan for Public Servants

- Potential coverage:
  - Civil servants, Teachers, Fire, Police, Prison Guards, Defence force, Judiciary, Parliamentarians
- Sample plan design features taken from some of the public sector plans in T&T:
  - Final average DB plan
  - Non-contributory, with a few exceptions
  - Normal retirement at 60
  - Unreduced early retirement at 55
  - Vesting after 5 years
  - No inflation protection before retirement
  - Ad hoc inflation protection after retirement

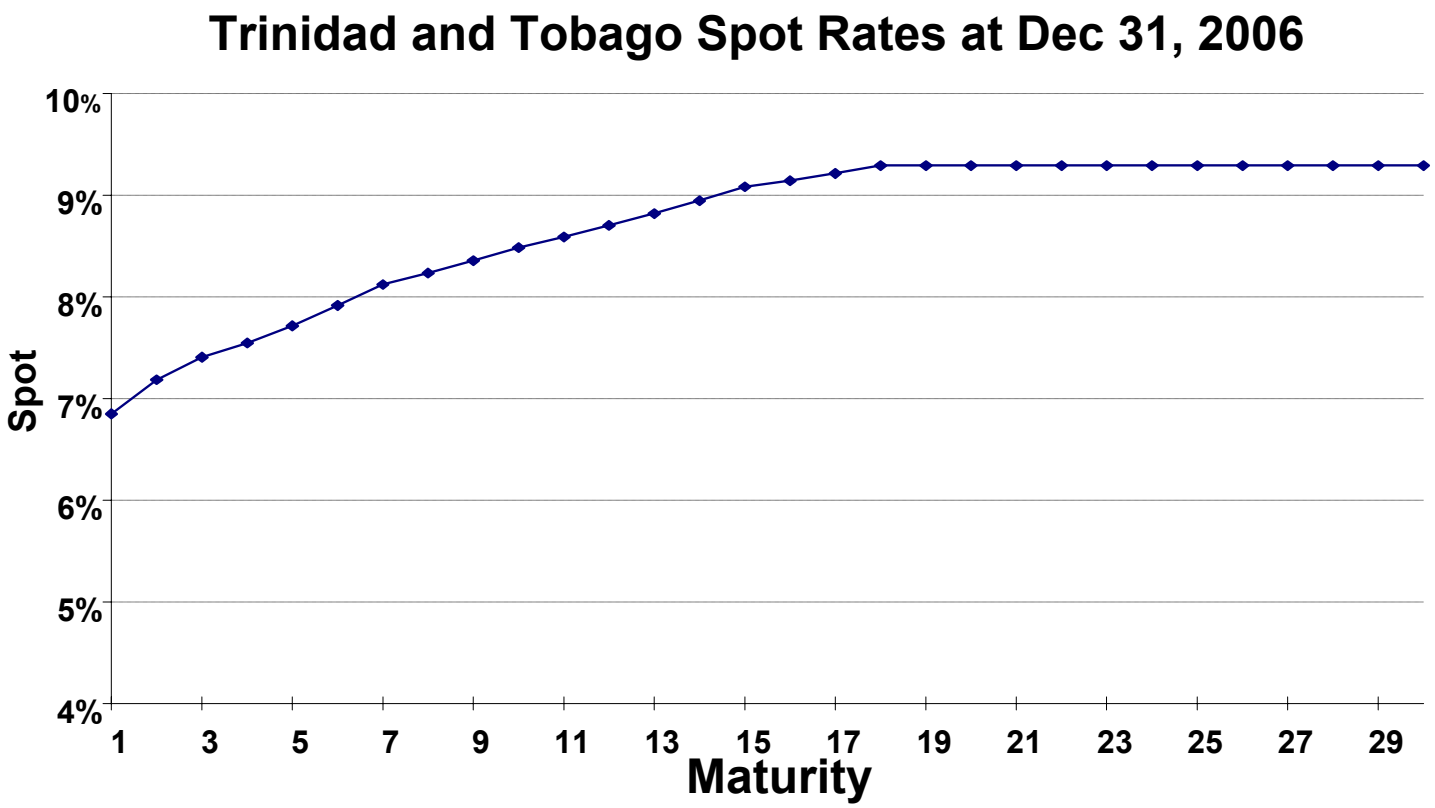
Key risk factors affecting costs

- Real interest rates
  - Most significant factor affecting costs, particularly if significant inflation protection is provided to retirees
  - If real interest rates were to decline, liabilities and ongoing costs would increase significantly
- Nominal interest rates
  - Lower nominal interest rates would result in higher liabilities and ongoing costs, particularly if minimal inflation protection is provided to retirees
- Retirement age of active members
  - If members do not take full advantage of early retirement subsidies, costs are lower; if this were to change, the cost of the plans would increase
- Mortality
  - If mortality were to improve faster than anticipated, the cost of the plans would increase

Key factors affecting assumption setting

- Economic assumptions are set based on future market expectations rather than historical experience:
  - Assumes deep and liquid secondary debt markets to infer long-term real interest rates and inflation
  - In their absence, alternatives must be considered
- Demographic assumptions are typically set based on several factors:
  - Past experience
  - Broad trends
  - Plan sponsor expectations
  - Analysis of behavioural incentives provided by the plan terms
  - Reliance on any one factor depends on available data
- Sensitivity testing becomes important to address any gaps

Developing the discount rate

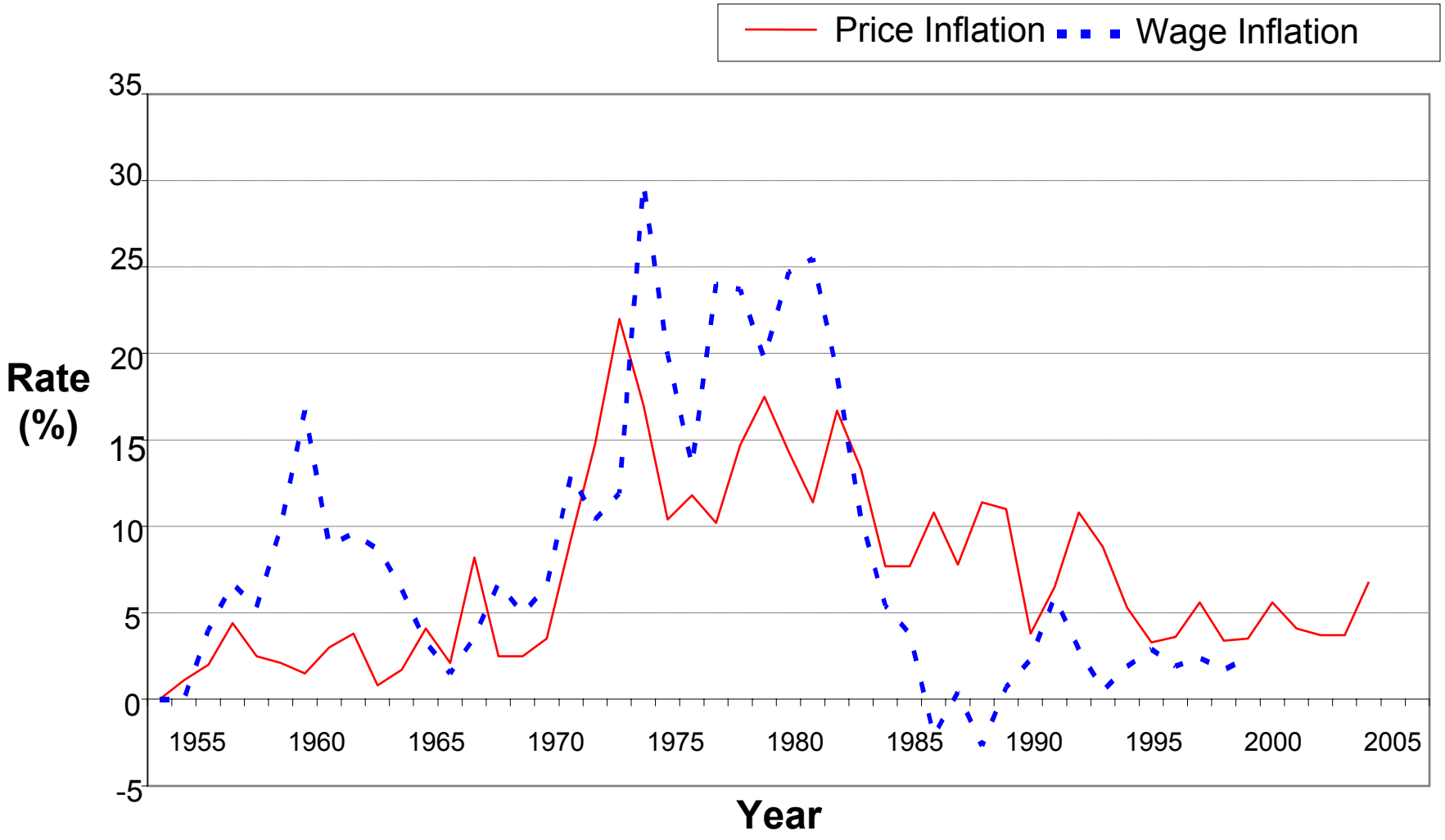


CMMB Caribbean Bond Guide as at December 31, 2006

Challenges

- No spot rate beyond 18 years
- Some developing nations have their currency pegged to the US dollar, yet sovereign debt yields are much higher
- Questions raised:
  - Is the market deep and liquid?
  - Is there a free flow of capital?
  - How could the yield curve change as developed nation status is approached?

Long-term inflation expectations



Central Statistical Office, Ministry of Planning & Development, Government of the Republic of Trinidad & Tobago

Challenges

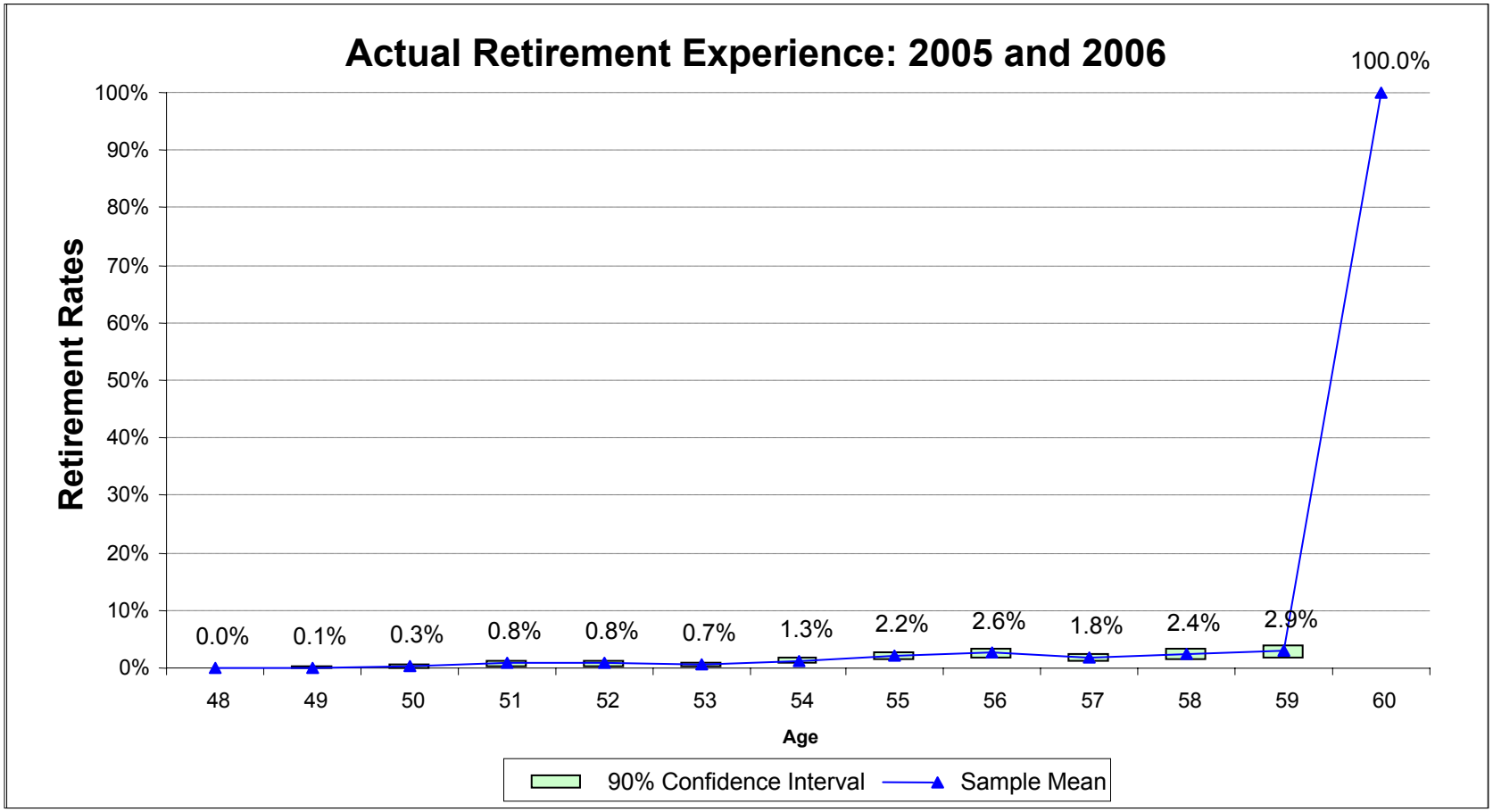
- Significant variability over the past 50 years
- Periods of some stability in 15-year segments
- Central Bank outlook: provides long-term forecasts and targets
- Current economic environment: provides short-term expectations

Real wage growth

Period	Price Inflation	Wage Inflation	Real Wage Growth
1991 – 2000	5.46%	2.48%	-2.98%
1981 – 1990	11.21%	8.49%	-2.72%
1971 – 1980	13.12%	17.24%	4.12%
1961 – 1970	3.02%	7.04%	4.02%

- Like inflation, historic results have been highly variable
- But in a strong and growing economy, it is not appropriate to assume that real wage growth will continue to be negative in the long term

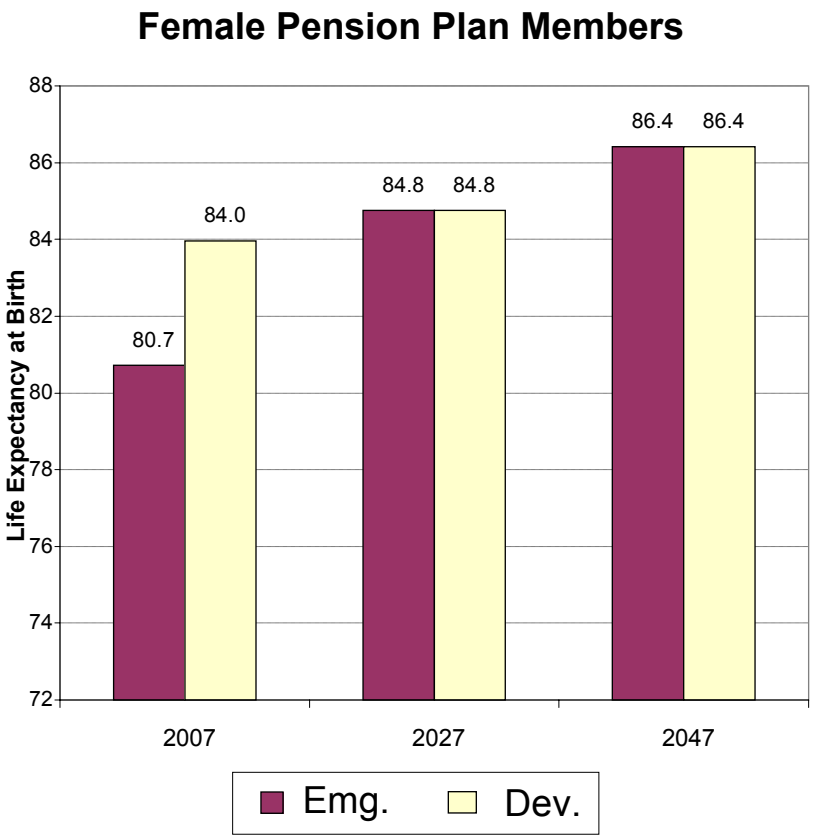
Retirement rate setting

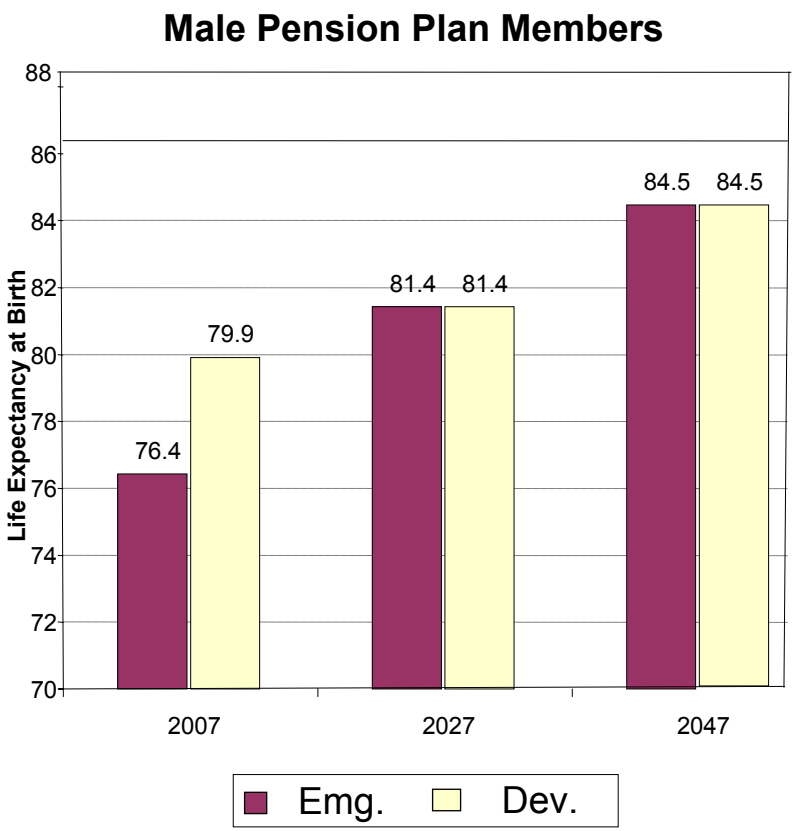


Mortality rate setting

- For many public service pension plans, historical mortality data is not easily available
- Broad population mortality is frequently significantly higher than in fully developed countries
- One approach to dealing with these challenges:
  - Start with current life expectancies for the broad population
  - Adjust them to reflect pension plan member mortality
  - Grade them to reach developed country status over some time period
  - Project improvements afterwards to be in line with developed country mortality

Illustrative life expectancies





Financing Approaches

Financing Approaches

- When plans are financed on a pay-as-you-go basis from general revenues, costs equal pension payments
- Key issue with this approach is that the costs of each generation of public servants is borne by the next generation of taxpayers
- Potential inter-generational inequities could arise if aggregate pension payments grow at a different pace than the economy or wages of the general population
- The level of inter-generational wealth transfer is dependent on the level of inflation protection provided in the future
- Alternative financing arrangements:
  - Full funding approach
  - Reserve fund approach

Full funding approach

- Assets accumulated in a separate fund
- Goal is to accumulate and maintain assets equal to a funding target (frequently, but erroneously, referred to as liabilities)
- Pension payments would be made from the fund instead of general revenues
- Investment earnings on the assets help finance the cost of providing pensions
- Contributions in future years would consist of:

	Current service cost
+	Payments to fund the initial deficit over a given period
+/-	Payments to fund experience losses or gains arising in future years over a period
+	Opportunistic funding

Full funding approach

- Under the full funding approach:
  - Once the system is mature, each generation of taxpayers would bear the estimated cost of providing pensions to the same generation of public servants
  - While the initial deficit is being funded, the current generation of taxpayers would bear a significant burden
- Full funding may be a useful funding mechanism:
  - If the current generation is willing to bear the burden; and
  - If real interest rates remain high
- Recall: C + I = BP + E
- A full funding approach would introduce significant additional volatility to costs (vs. pay-as-you-go costs) due to interest rate risks and investment risks

Full funding approach

- Pre-funding pensions requires many other important issues to be considered since large pools of capital will be accumulated:
  - Governance structure
  - Establishment of body to oversee pension fund
  - Development of investment policy mandate including:
    - Whether to invest in risky assets
    - How much to invest locally vs. abroad
    - Whether to consider social policy objectives
    - Mandates and objectives for investment managers
    - Hiring and firing of investment managers
  - Development of funding policy
    - Rules or guidelines for determining amount of funding
    - Opportunistic funding

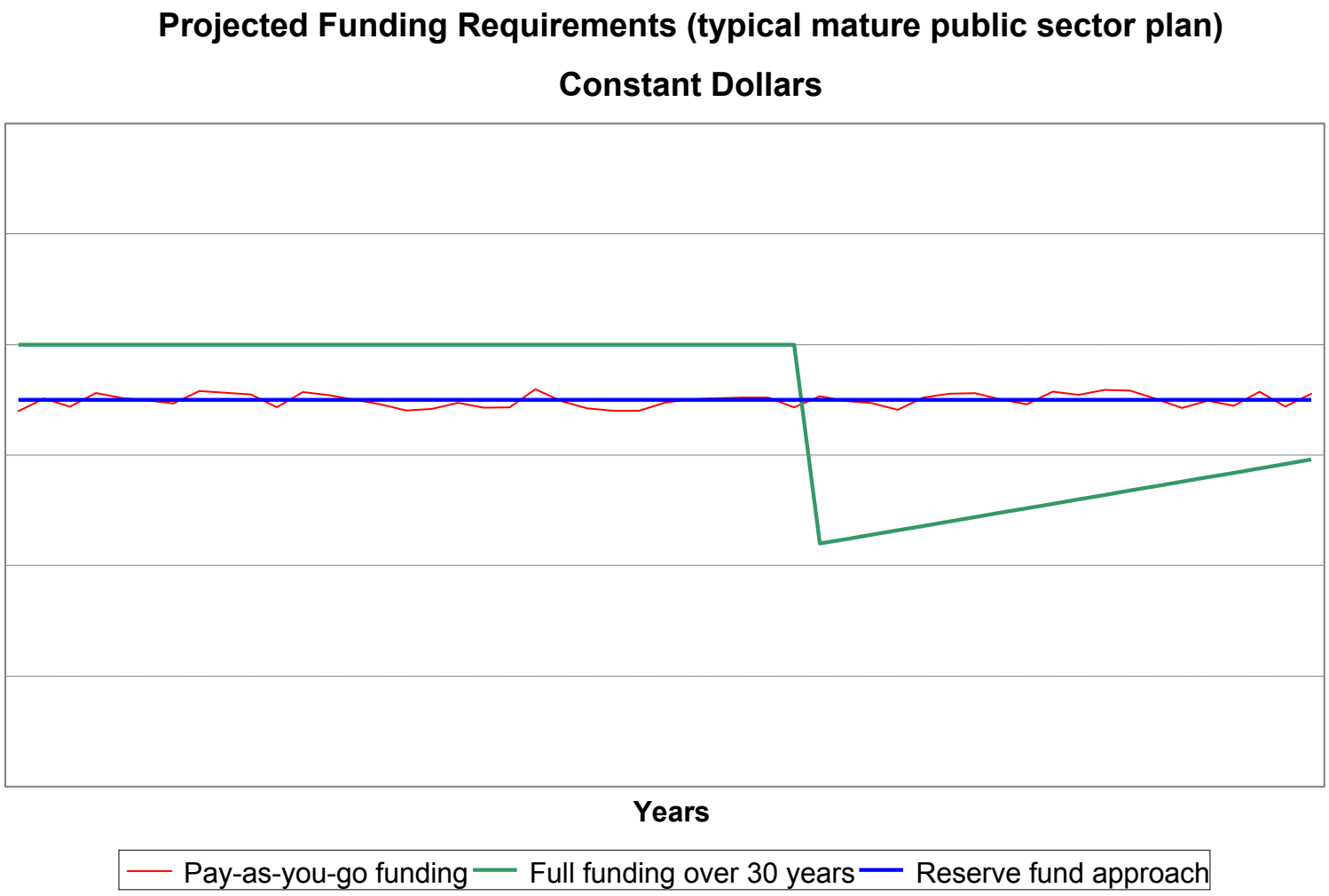
Reserve funding approach

- Goal of this approach is to keep costs relatively stable over time
- Assets set aside in a separate fund
- Funding set at a fixed level, with the potential for additional opportunistic funding adjustments and subsequent adjustments for experience gains or losses
- Assets are accumulated in years in which benefit payments are less than the funding level, and drawn down in years benefit payments exceed the funding level
- Could potentially result in significant accumulation of assets for extended periods, thereby exposing the scheme to some investment risk
- The rationale for a reserve fund approach is more apparent if increases to retiree pensions are expected in the future

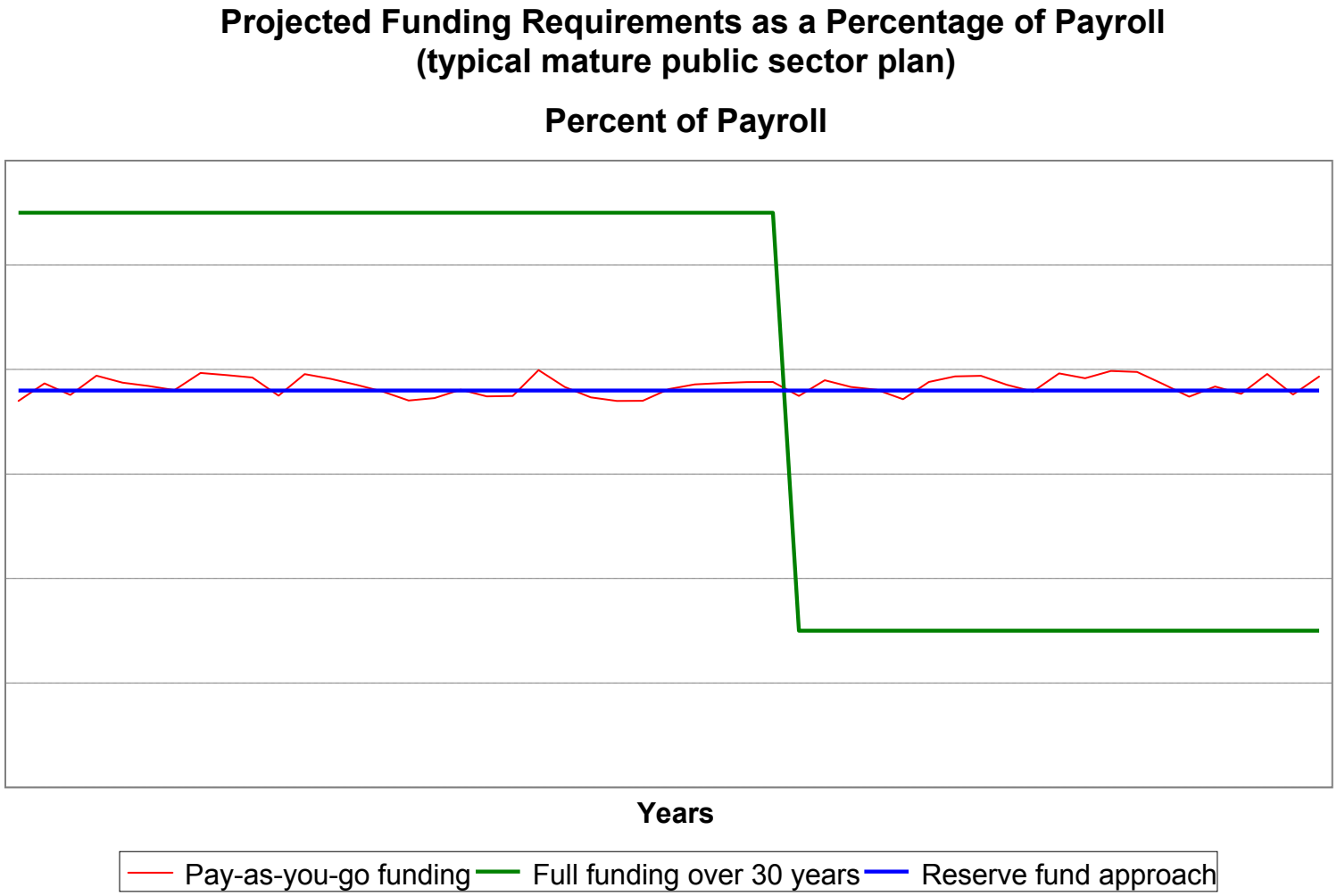
Illustrations of financing approaches

- The projected pattern of costs under the three alternative approaches is based on two scenarios:
  - No inflation protection
  - Full inflation protection
- The projections assume:
  - Asset returns based on projected forward returns derived from sovereign bond yields
  - Under full funding approach, initial deficit funded over 30 years
  - Under reserve funding approach, funding level set so as to keep the fund solvent over a rolling 50 year period
  - Under no inflation protection scenario, funding level based on price inflation; under full inflation protection scenario, funding level based on level of wage inflation

Projected costs (no inflation protection scenario)



Projected costs (full inflation protection scenario)



Impact of risk factors on costs

	Pay-as-you-go	Full funding	Reserve funding
Demographic risks	✓	✓	✓
Inflation risk*	✓	✓	✓
Investment risk	×	✓ ✓	✓
Interest rate risk	×	✓ ✓	×

* Risk is higher if inflation protection is provided to retirees, but still exists even if no inflation protection is provided to retirees (due to impact of inflation on salary increases)

Deciding on an approach

- In deciding how to finance pension obligations, it is desirable to retain flexibility to change direction
- The future holds many surprises – what makes sense now may not make sense 10 years from now:
  - The rationale for full funding is highly dependent on the level of real interest rates
  - The ability to continue on a full funding path may be diminished if economic conditions were to worsen
  - Trends in mortality improvement, retirement patterns, population growth

Plan Design
Trends and Lessons

Design considerations

- Risk sharing
- Aging workforce
- Benefit adequacy
- Competitiveness
- Diversity

Risk sharing

- Key risks faced by pension plan stakeholders
  - investment risk
  - interest rate risk
  - inflation risk
  - longevity risk
- Historically, plan sponsors have usually borne most of the risks
- In the private sector, many sponsors are moving away from DB plans, closing their plans entirely or for new entrants
- In the public sector, the trend is less observable, but some movement towards greater sharing of risks

Risk sharing

- Global trend towards increased cost sharing and increased emphasis on individual responsibility for retirement income security through:
  - variable employee contributions
  - indexation conditional on investment performance
  - hybrid type plans
  - complete switch to DC
- Lessons learned
  - Acknowledge pension risks as important, significant and unavoidable
  - Communicate risks and how they are shared as transparently as possible to all stakeholders
  - For plans to be sustainable in the long term, expect plan members to play a part in sharing risk

Dealing with aging workforce

- Many current plans
  - Encourage early retirement
  - Discourage late retirement
- Retirement incentives under current plans are often inconsistent with workforce management strategies given:
  - Aging population (increasing longevity, lower fertility rates)
  - Forecasted labour shortages

Dealing with aging workforce

- Global Trends
  - Expected focus in the future to retain skilled older workers
    - Introduction of phased retirement type arrangements
    - Reducing incentives to retire early
    - Elimination of mandatory retirement
- Lessons learned
  - Pension plans are not a great tool for managing changing workforce needs
  - Pension plans should be neutral on early or late retirement incentives
  - Other forms of compensation are more effective in workforce management

Benefit adequacy

- Adequacy: required amount of income during retirement to maintain standard of living before retirement
- Adequacy of pension plan benefits in conjunction with social security and personal savings
- Required replacement ratio depends on a number of factors, including:
  - Tax system
  - Level of government provided health coverage
  - Family income level
  - Marital status
  - Number of children
  - Home owner vs. renter
  - Other individual specific factors ….
- In many developed countries, elderly couples have lower incomes than working families, but higher standards of living

Benefit adequacy

- For example, in Canada the elderly have 50% of the income of working families but similar standards of living due to:
  - Lower debt, particularly mortgage debt
  - No childcare costs
  - No need to save
  - No payroll tax
  - Reduced income tax
  - No employment expenses
  - Government medical benefits
  - More time to do things for themselves, including living economically
- Adequacy at retirement vs. later years of retirement
  - Inflation protection
  - Changing retiree needs during retirement

Competitiveness

- Is competitiveness an issue?
- Who are the appropriate comparators?
- How to measure competitiveness – total compensation vs. pension only?

Different concerns for different groups

Legislators	▪ Discontinuous service recognition ▪ Eligibility requirements ▪ Executive style benefits
Protective services	▪ Disability benefits ▪ Early retirement ▪ Transition and rights to existing assets
Judiciary	▪ Postponed retirement benefits
Others in the civil service	▪ Early retirement benefits ▪ Inflation protection

- Differences in plan provisions are often long standing global patterns
  - not necessarily justified by current situation
- Need to decide whether these patterns should continue to exist

Transition issues

- Transitioning from one plan to another can be very complicated if benefits are being moderated
  - Period of transition from current plan to new plan can be decades
- Possible approaches
  - Changes apply to new employees only
  - Changes apply for future service
    - Past service benefits unchanged
    - Future service benefits changed for all employees, perhaps with some grandfathering
  - Past and future service benefits changed, with perhaps some grandfathering

Concluding remarks

The challenge is not to predict the future.

It is to develop retirement plans that can adapt to, and survive, an unpredictable future.

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