

# **15<sup>th</sup> Regional Conference**

## **"Pensions in Crisis"**

**March 4, 2009**

### **Optimal Funding**

### **Fully Fund? Partially Fund?**

### **Benchmarks for Sustainability & Regional**

### **Experience**

**Presented by:**

**Tassia Tsikkinis**  
**Senior Assistant Actuary**  
**Pensions and Social Insurance**  
**i.e. Muhanna & co**

# Introduction

## Funding Retirement Benefit Schemes

- **Priority in government's agendas**
- **Recent changes in demographic patterns**
  - new labor market structures
  - increasing longevity of pensioners
- **New legislative regimes**
- **Optimization**
- **Objectives**
  - current funding methods, range of options
  - funding methods, scheme viability, sustainability - benchmarks
  - separate analysis for pension & social security schemes

# Social Security Schemes (Funding)

- Unfunded Vs Funded
- Unfunded e.g. raising taxes/borrowing and pay benefits as they fall due
- Funded – setting aside money in advance to pay future benefits (fully or partially)
- Financing System adopted depends:
  - historical/cultural reasons
  - financial circumstances
  - investment capacity available in the country

# Social Security Schemes (Funding)

## Arguments in favor of funding

- fairer to have higher contributions than PAYG when a social security scheme is new with low pension expenditure
- increases the level of savings
- develop capital markets
- creates extra investment that stimulates growth
- eases pressures of an ageing population
- investment returns earned reduce the long-term cost of benefits

## Arguments against funding

- overall saving may not rise but redirected
- even if overall savings rise, it may not create real investment
- does not solve the problems of an ageing population
- transition to funding may be problematic
- the fund may prove a political temptation to divert money for other uses
- managing a large investment fund has significant risks

# Social Security Schemes (Funding)

## Funded Vs Pay as you go

- Social Security need not be pre-funded
- Part of the assets is “future contributions”
- Should be sustainable in the long term
- Expected Contributions should fund for expected benefits
- If net rates of return on invested assets exceed the growth rate of the contribution base then funded schemes may be favored

# Social Security Schemes (Funding)

## Main Funding Methods

- Pay as you go
- General Average Premium
- Terminal Funding
- Scaled Premium

# Social Security Schemes (Funding)

## Pay as you go

- Contribution income in each year exactly (or almost exactly) equals benefit expenditure in the same year – no fund is established
- Contribution rate varies as the system matures or the population ages
- **Two variations**
  - Smoothed pay as you go: building up a contingency reserve in years where income exceeds outgo
  - Equalized pay as you go: equalized contribution rate is calculated so that expected income covers expected expenditure over a fixed period of years (control period)

# Social Security Schemes (Funding)

## General Average Premium

- The contribution rate is set such that a level rate will be payable throughout the lifetime of the scheme
- Contribution rate = present value of benefit expenditure over present value of future salaries
- Stability of contribution given that assumptions are borne out in practice

# Social Security Schemes (Funding)

## Terminal Funding

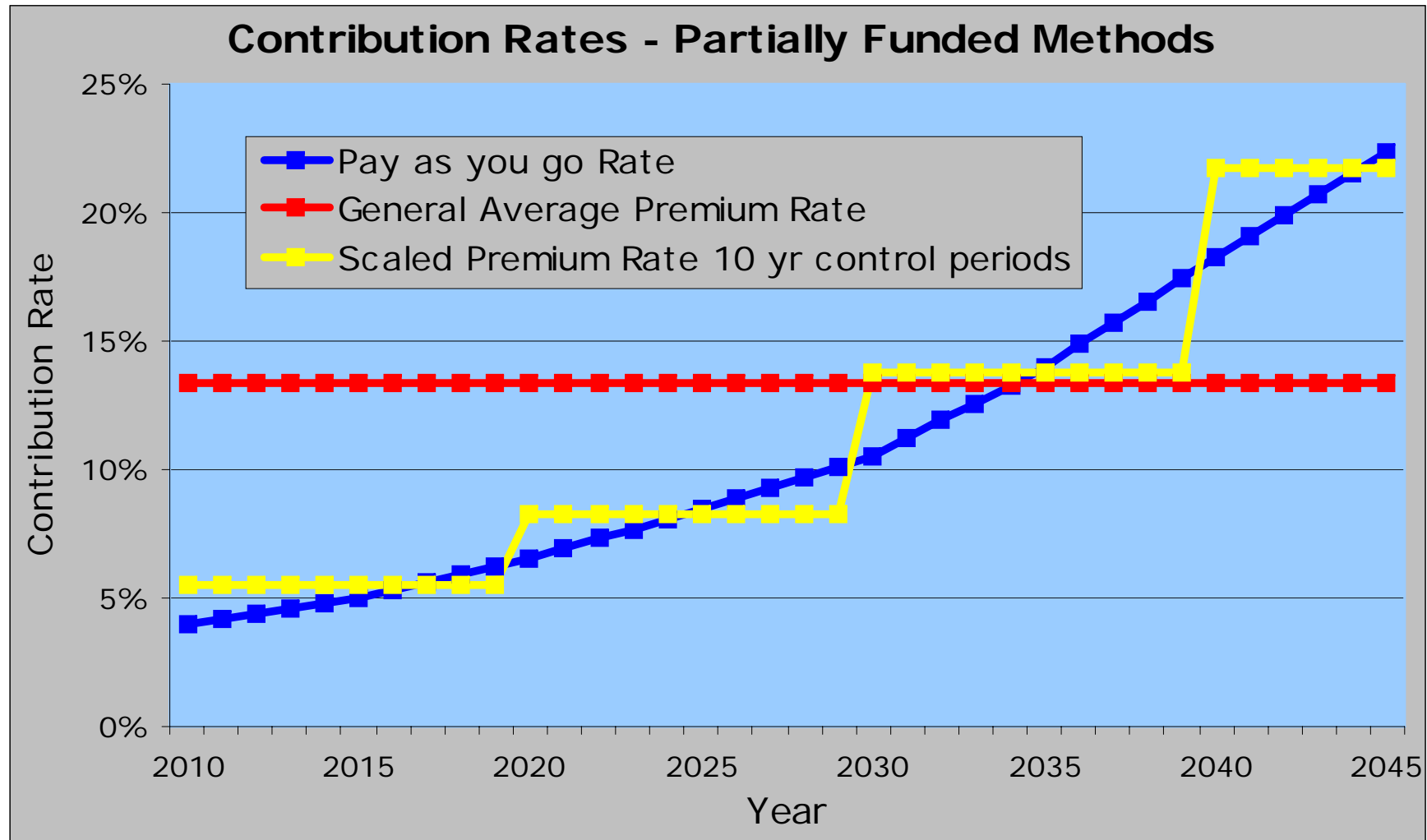
- Stability of contribution given that assumptions are borne out in practice
- Intermediate financial system between PAYG and GAP
- Benefits are prefunded at the time they are awarded
- The contribution income required in any period is the amount required to finance the capital value of the benefits awarded
- Widely used for pension benefits paid from occupational injuries funds

# Social Security Schemes (Funding)

## Scaled Premium

- Stability of contribution given that assumptions are borne out in practice
- Usually applied to partially funded social security schemes
- Lies between PAYG and GAP
- Similar to equalized PAYG but the fund is not allowed to fall to zero
- The contribution rate is calculated to apply for a period of time that would be sufficient to provide the benefits to be paid over the control period
- In a maturing or ageing scheme this method results in a stepped increasing contribution rate in successive control periods and a non-decreasing fund

# Social Security Schemes (Funding)



# Pension Schemes (Funding)

- Occupational defined benefit schemes
- Higher risk of default
- “proper funding” – a fund linked in some way to the plan’s accrued liabilities
- Usually prescribed by regulatory or accounting requirements
- Number of methods used to calculate accrued liabilities (Projected/Current Unit, Attained Age, Entry Age Method)
- Book reserving method – provision in a company’s accounts for a benefit liability payable in the future for which no funds have been set aside

# Pension Schemes (Funding)

- **Two statutory measures of liabilities**
  - directed by the pension regulator for funding purposes
  - by plan sponsors for business accounting **purposes**
- **Differences usually relate to:**
  - level of funding
  - actuarial method to be used
  - choice of discount rate
  - benefits to be considered
- **Differences in discount rates**
  - regulators usually apply a maximum discount rate
  - accounting standards are based on market yields of fixed income securities

# Pension Schemes (Funding)

- Discount rate used in regulatory & a/c measures of pension liabilities in selected OECD countries (2005)

	Regulator	Accountant
Belgium	6	4.87
Canada	4.5	5.98
Germany	2.75-4	4.91
Ireland	4.6-7.25	4.81
Japan	1-1.6	2.07
Netherlands	4	4.94
Portugal	4.5	5.12
Spain	4	4.87
United Kingdom	4	5.41
United States	4.7	5.83

\* Source: OECD Working Paper, Reforming the valuation and funding of pension promises

# Pension Schemes (Funding)

- Valuation methods for funding purposes
- Example of Regulators required discount rates
  - specific or maximum rate
  - current market yield on an identifiable group of securities
  - rates implicit in the purchase from insurance companies of immediate and deferred annuities
- Recent trend to move towards market-based discount rates – usually the market yields of government bonds
- This is likely to bring out some convergence between regulators requirements and accounting standards
- OECD countries that introduced market-based liability valuations of DB pension funds: Japan, the Netherlands, the United States.

# Pension Schemes (Funding)

- **Valuation methods for accounting purposes**
- **IAS 19**
  - approved in May 1999
  - adopted by many OECD countries
  - European Union – June 2002 Resolution – all listed companies based in EU to comply with IASB accounting standard in the preparation of their consolidated group accounts
- **Based on market valuation principles using the PBO measure of pension liabilities**
- **Benefits are discounted at a specified corporate bond rate**
- **Actuarial gains/losses may be either amortized over the remaining service period of plan members or immediately recognized in the P&L or immediate recognition in a separate income statement**

# Scheme Funding

- **Choice of Funding Method**
- **Timing of meeting the cost**
- **Cost is not affected**
- **Choice of method depends**
  - meeting the needs of various parties
  - accounting needs
  - regulatory restrictions
  - meeting certain criteria (security, stability, realism, liquidity, flexibility, opportunity cost, durability)
  - financial circumstances
  - historical and cultural reasons

# Financial Viability

## Pension Funds

- viability is defined by the funding level (assets held to cover accrued promised liabilities)

## Social Security Schemes

- definition for viability is debatable
- no predetermined benchmarks
- viability can take many forms
  - projected reserve to cover benefit expenditure a number of times
  - projected reserve remains positive for e.g. 60 years
  - benefit expenditure will not exceed a certain % of GDP
- **Different countries developed different implied definitions for scheme sustainability for social security pension arrangements**

# Financial Viability

## Canadian Pension Plan

- Set a steady contribution rate
- Defined to be the lowest level rate that results in the projected reserve ratio being the same in the 10<sup>th</sup> and the 60<sup>th</sup> year following the end of the actuarial review period

## U.S.A Social Security System

- Two summarized rates for a given period
- Income rate: ratio of present value of contribution income to the present value of insurable earnings
- Cost rate: ratio of the present value of total expenditure to the present value of insurable earnings
- The difference of the two rates determined the actuarial balance
- “in close actuarial balance” for a long range period e.g. 75 years if the income rate is between 95% and 105% of the cost rate for the period

# Financial Viability

- Definition of surplus – equally important
- Reserves/surpluses of young schemes
- Misuse of reserves
- Sometimes understood by politicians to be an economic surplus and were used to give out benefit increases

# Financial Viability

- International Public Sector Accounting Standards Board
- Long term fiscal sustainability reporting and recognition and measurement of social benefits
- Objective: serve the public interest by developing high quality accounting standards for use of public sector around the world in the preparation of general purpose financial statements
- Conclusions: traditional approaches to liability recognition may not be suitable for conveying information to users about the future provision of social programs

# Social Security Schemes in the GCC

- Social Security Schemes in countries members of the Gulf Cooperation Council (GCC)
- Generous benefits which represent the largest, and possibly, the only pillar of pension provision in the country
- Large mandates and high expectations
- Financing method and/or definition of viability are not set out
- Guaranteed by the Government – if the schemes' funds are not sufficient, the Government is obliged to fund the shortage – what is the definition of shortage?
- Depends on the Actuary

# Social Security Schemes in the GCC

- Financial position of five GCC schemes

Scheme	State of Scheme Maturity	Reserve Ratio	Depend. Ratio	Year the reserve is expected to be depleted	Reserve as a % of past service liability	Past Service Liability as a % of GDP
<b>A</b>	medium	39.2	29.2	2091	56.9%	2.6%
<b>B</b>	mature	11	7.3	2020	39.5%	12.1%
<b>C</b>	young	22.6	35.5	2040	52.8%	3.8%
<b>D</b>	young	8.8	3.6	2044	38.9%	3.9%
<b>E</b>	mature	11.2	5.4	2026	39.5%	17.1%

# Conclusions

- Method of financing - affects the timing of meeting the cost, not the cost itself.
- Social Security Schemes: government guarantees, security level and large size of the funds build up
- DB occupational pension schemes: higher risk for default – funding level is directed by regulatory or accounting requirements.
- Arguments in favor of implementing stricter accounting and actuarial standards for Social Security Schemes (semi government organization pension funds)
- Proper governance and stricter controls (accounting and actuarial standards may be needed).
- Administration and investment of the social insurance funds.
- EU directive 41 - many of the guidelines in this directive should have been implemented for social insurance funds

# Thank You!