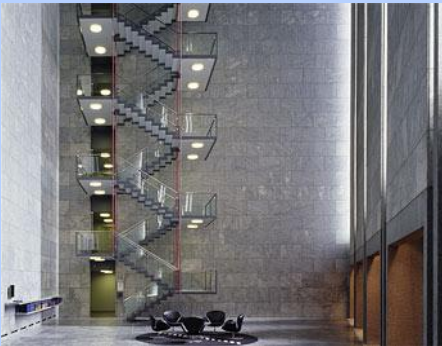




Ultra long term financial instruments



Jens Thomsen

OECD Seminar: "The pension payout phase:
annuities and implications for financial markets"

Paris, 12 November 2008



Prologue

I have two messages for you today:

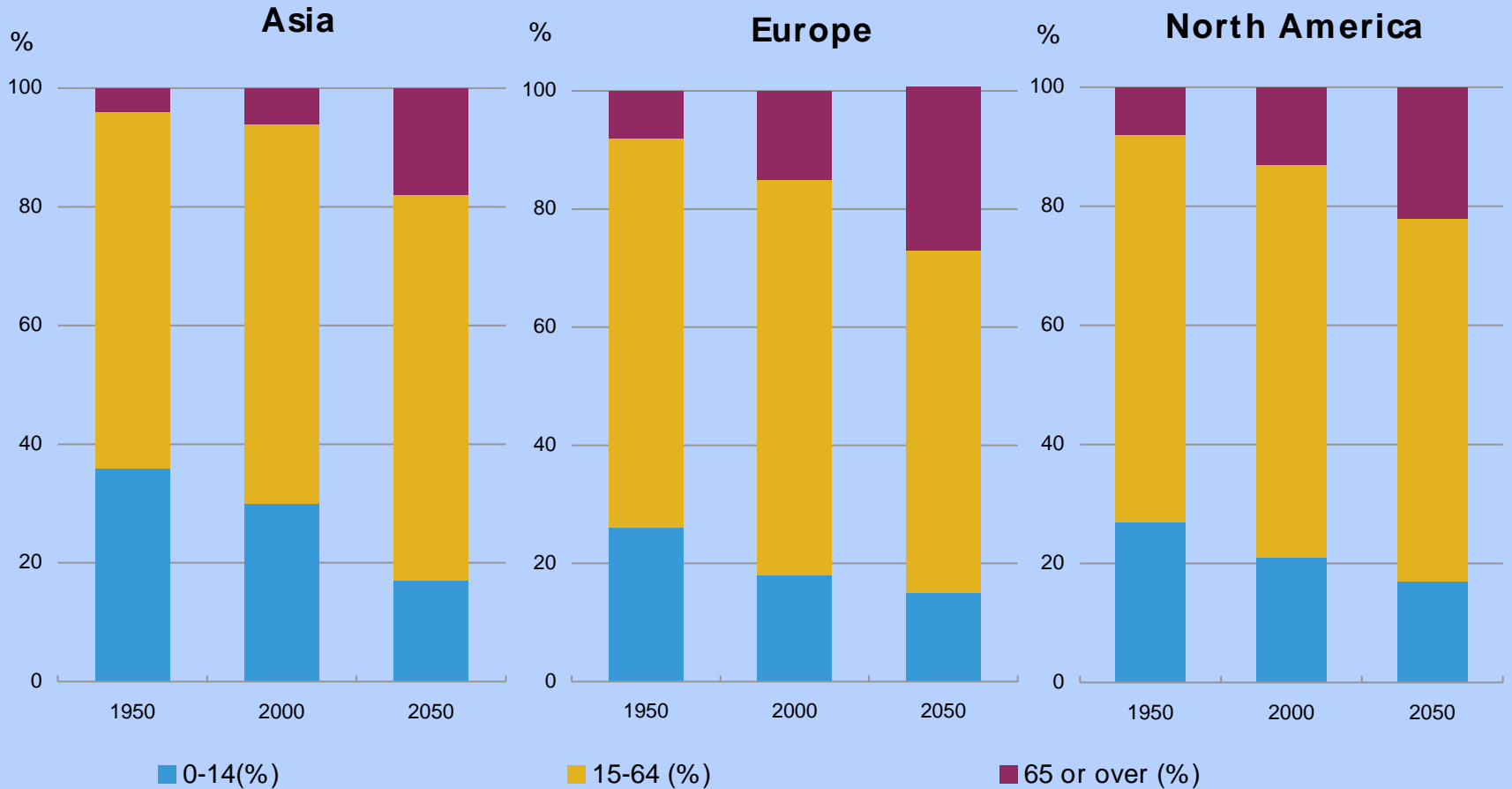
The positive news is that people today live longer than ever before

At the same time they may outlive their reserves and may at some point need to reduce their standard of living



Old-age dependency is rising sharply

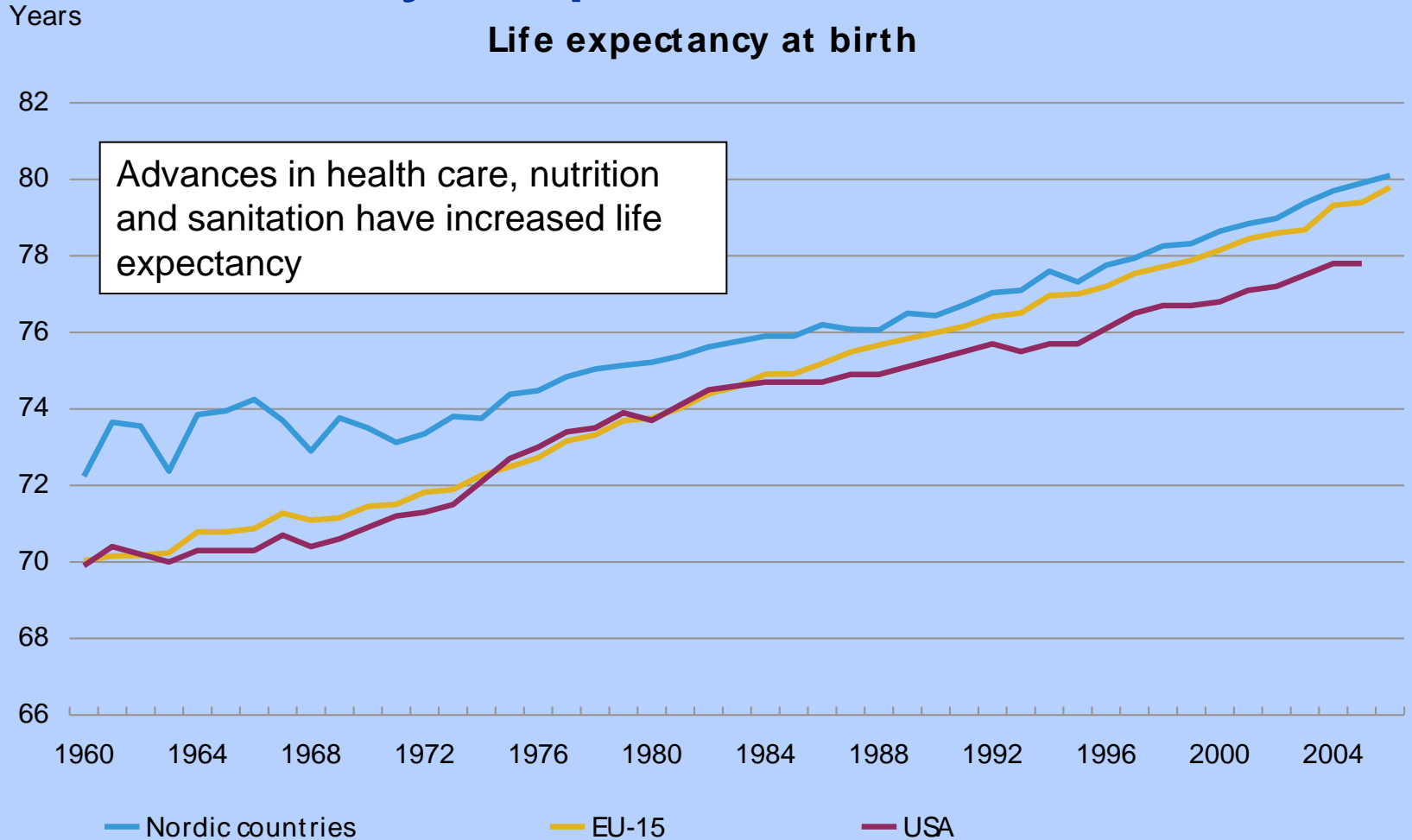
Age distribution



Source: United Nations



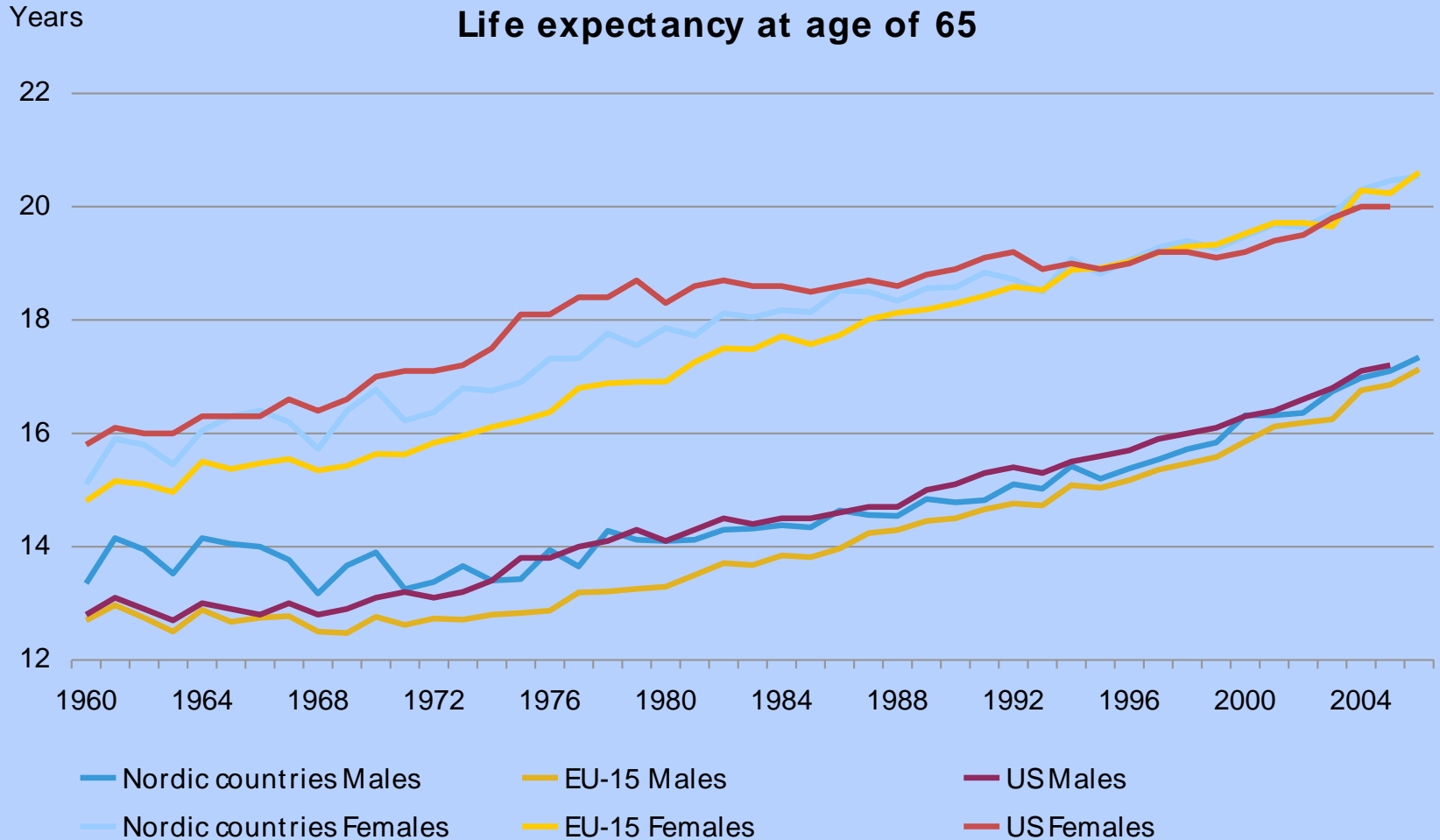
Longevity risk is the risk that individuals will live longer than statistically expected



Source: OECD



In particular, the increase in life expectancy at retirement age can be a challenge for carriers of longevity risk

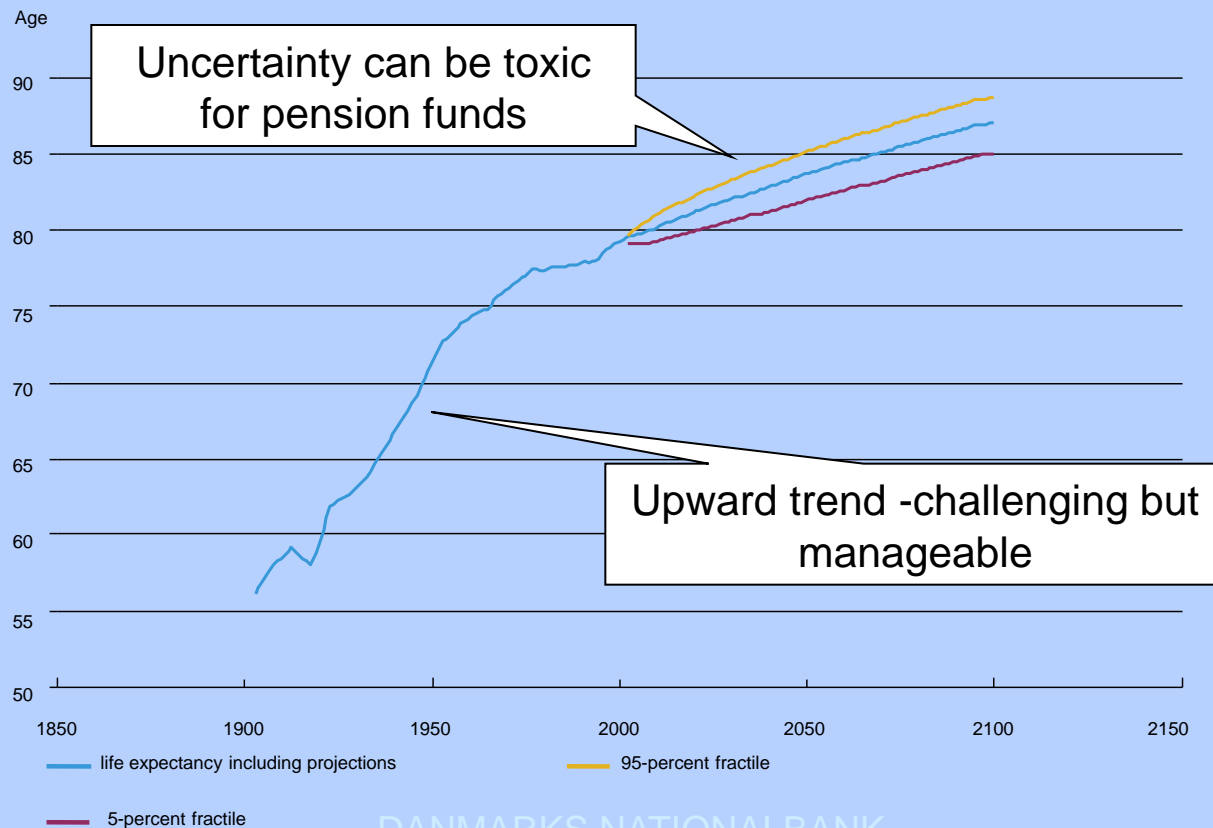


Source: OECD



The risk is the speed and magnitude of the change in life expectancy, not the direction

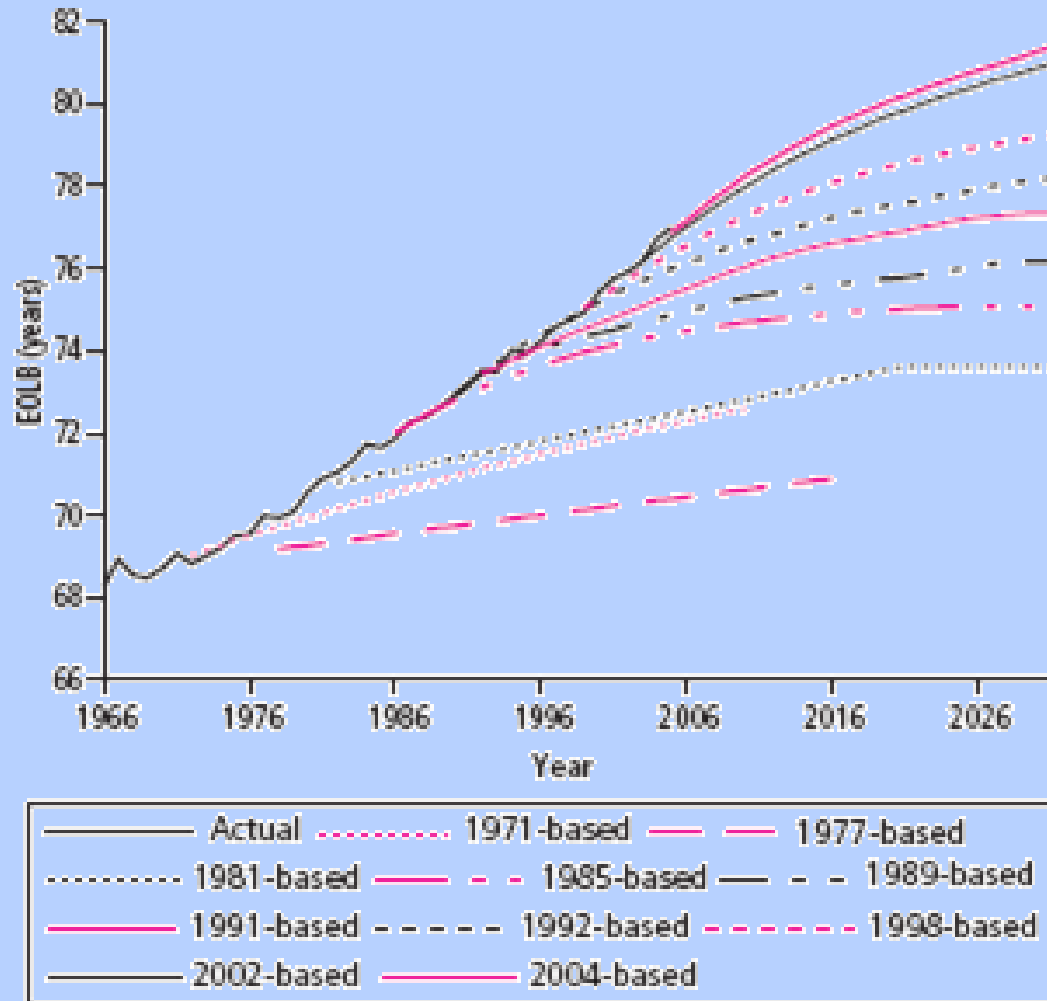
Expected and unexpected development in life expectancy for women in Denmark





(In)accuracy of mortality assumptions

Actual and projected life expectancy at birth, UK males, 1966-2031





Individual's point of view

Live longer

- ◆ How much longer?

Work longer

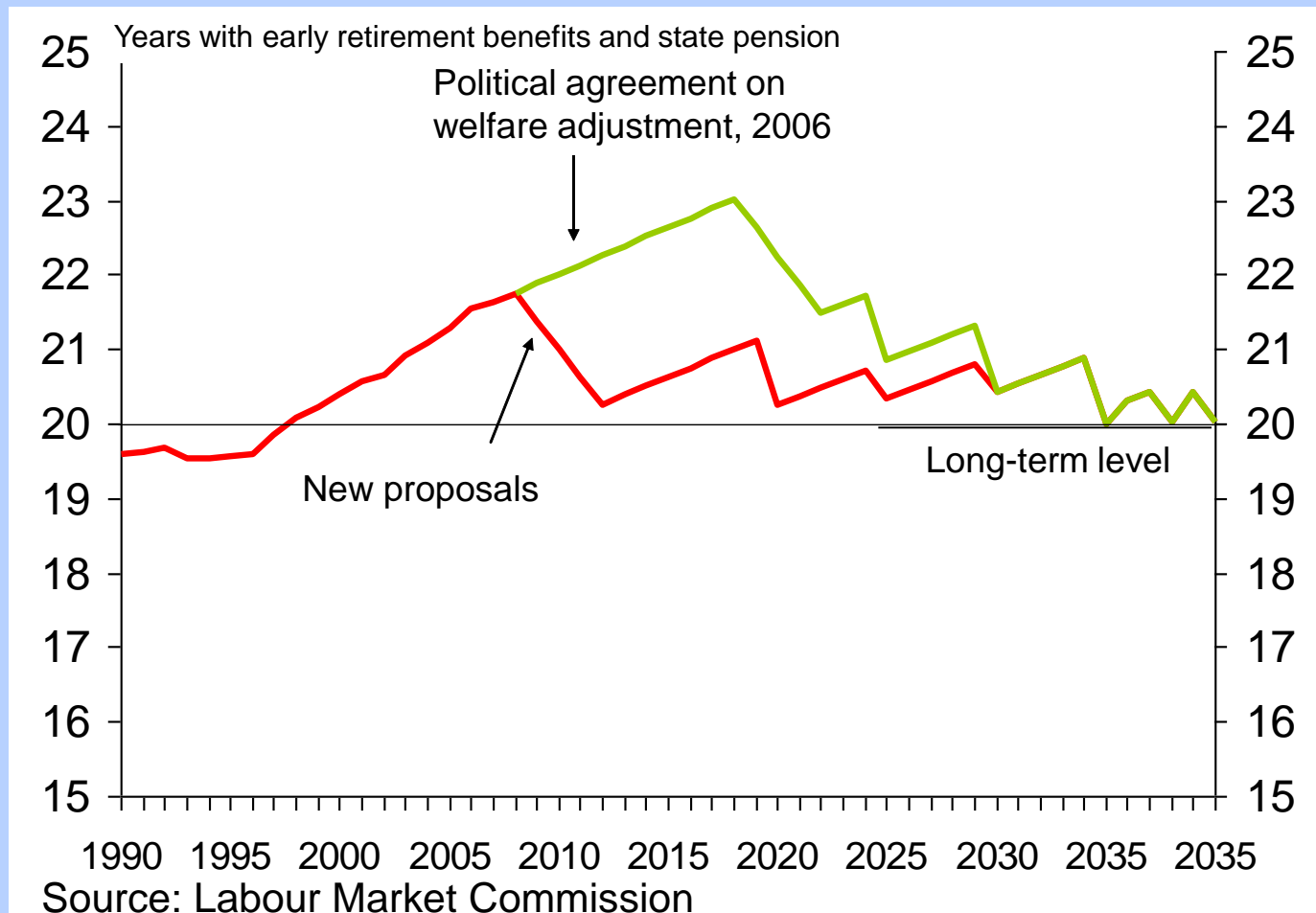
- ◆ How much longer?
- ◆ Requires a labor market reform

Save more

- ◆ How to save?
- ◆ Is there assets that are enough long-dated?
- ◆ Do these assets give life-long income stream?

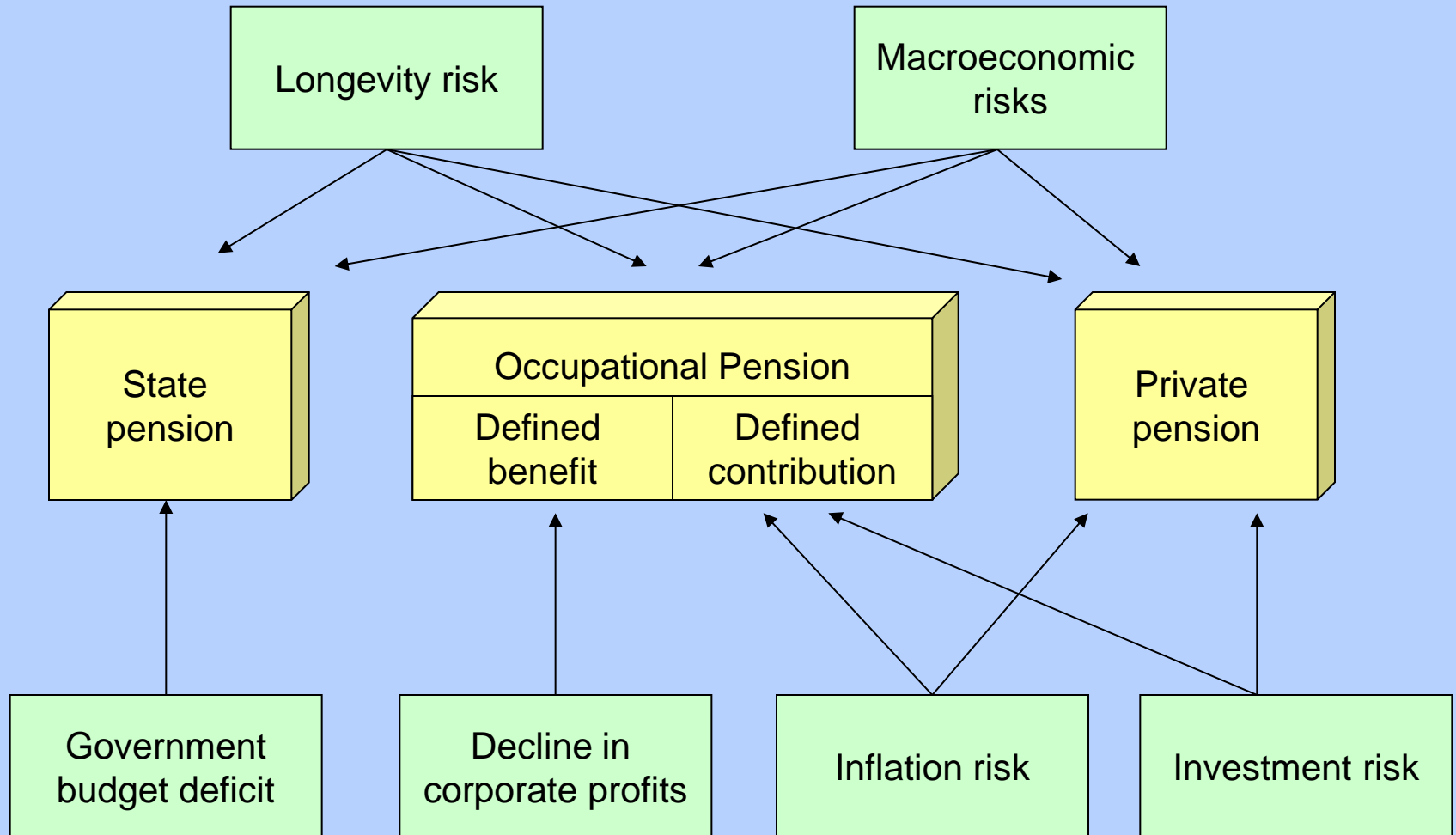


DK: Expected number of years with early retirement benefits and state pension for a 60-year-old, 1990-2035





Risks affecting retirement saving





Types of pension plans

Defined benefit plan

- Benefit determined by a set formula
- Sponsor bears investment or longevity risk

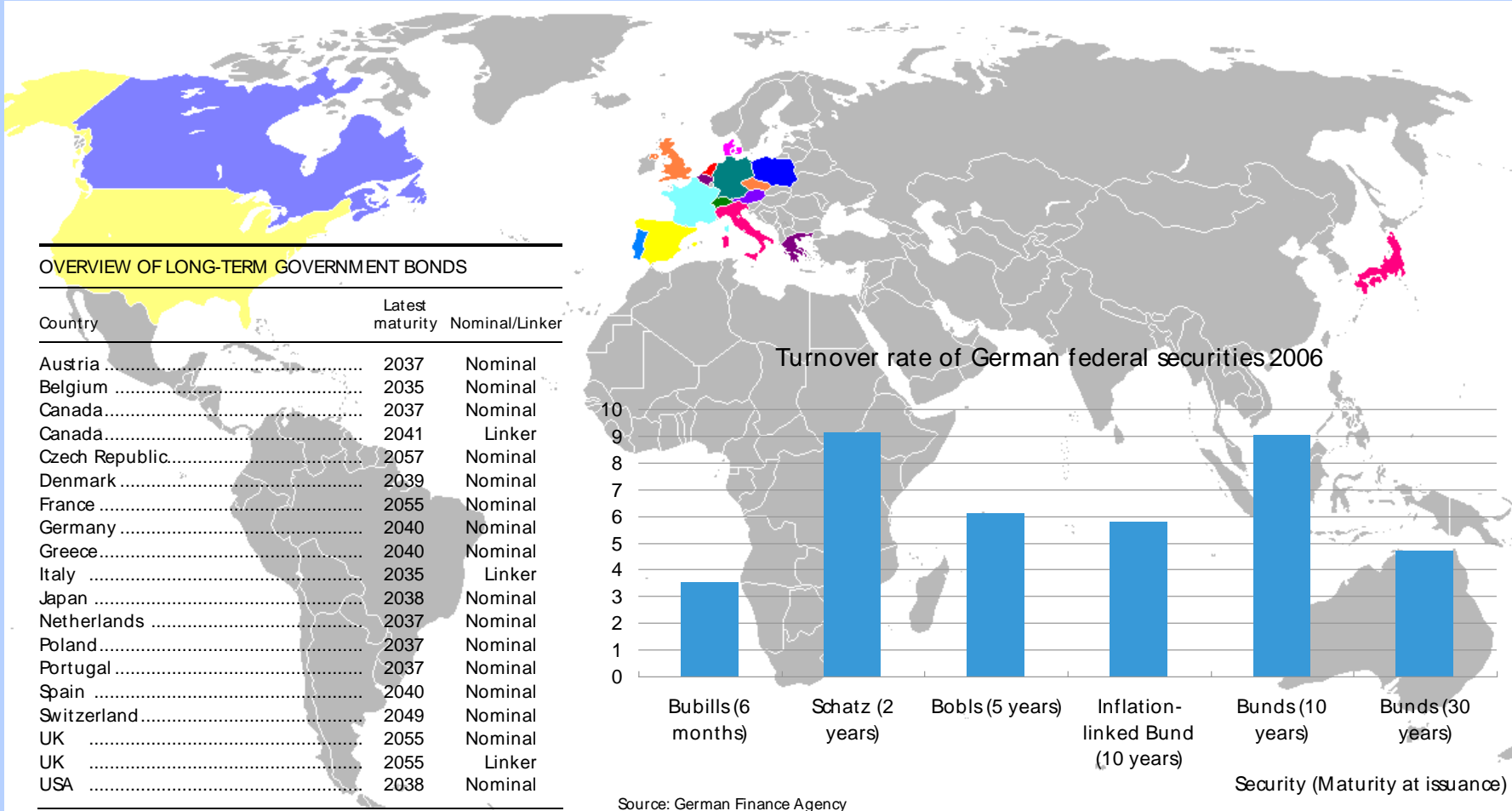
Defined contribution plan

- Benefit depends on contributed amount and investment returns
- Retiree bears investment and longevity risk

No matter who bears the risks,
instruments for investment and longevity risk bearing
and hedging are needed

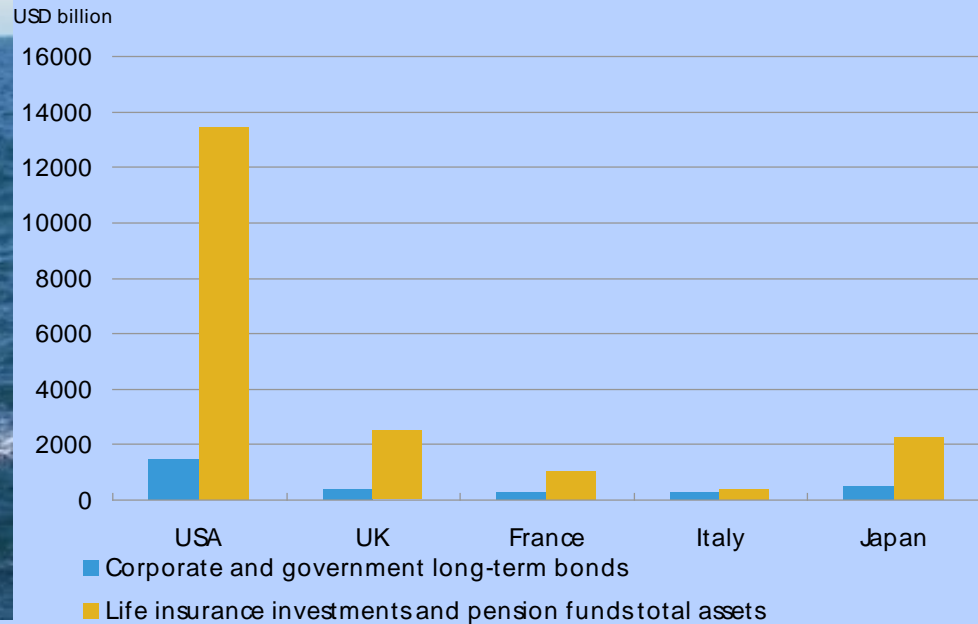


Government bonds with maturities over 30 years, OECD-countries





Markets for long-dated bonds are small relative to the size of pension fund and insurance company portfolios



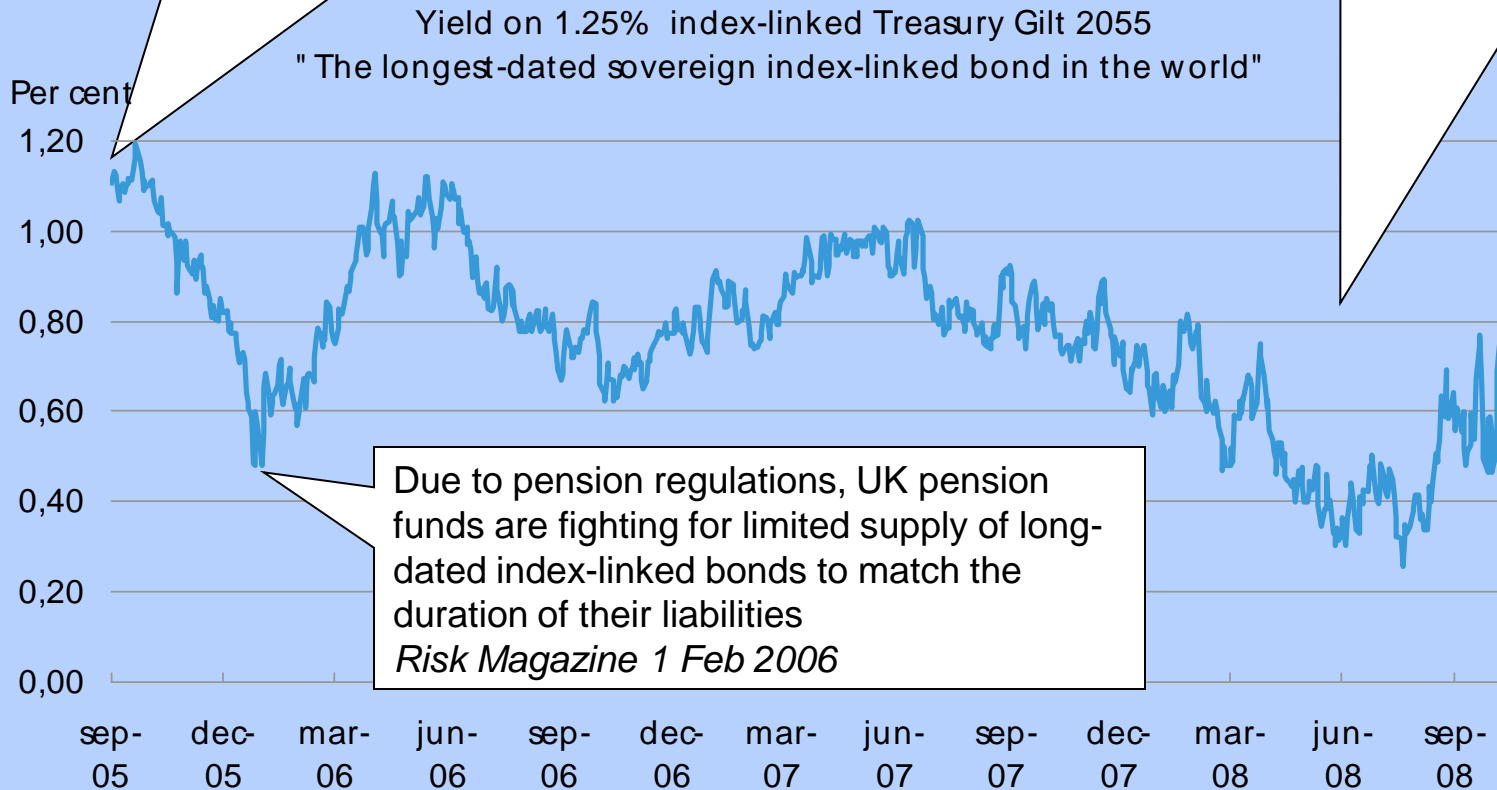
Source: Ageing and Pension System reform, Report to the G10 deputies, 2005, *Pension Markets in Focus*, OECD Newsletter, Dec 2005



Issuance of ultra-long government bonds in UK

Yield at opening: 1,112%
Investors: 90% domestic. 66% fund managers, pension funds and insurance companies, 33% market makers
UKDMO 22 Sep 2005

High inflation and the regulatory demands placed on pension funds continue to create solid demand for UK inflation protection from liability-driven investors
Risk Magazine 1 Jul 2008



Due to pension regulations, UK pension funds are fighting for limited supply of long-dated index-linked bonds to match the duration of their liabilities
Risk Magazine 1 Feb 2006

Source: Bloomberg



Other types of instruments for hedging longevity risk

- ◆ Longevity bonds (EIB project, withdrawn)
 - ◆ Based on survivor rates
- ◆ Mortality linked derivatives
 - ◆ Based on mortality rates
- ◆ Mortality linked securities
 - ◆ Swiss Re and Scottish Re
- ◆ Asset backed securities on basis of a pool of life insurance policies



Size mismatch

Buyers of longevity risk

- Pharmaceutical companies
 - Care providers
 - Asset managers

Holders of longevity risk

- Pension funds and insurance companies through provision of annuities
- Governments through state pensions
 - Many companies through pension schemes



A dilemma

Life insurance and pension sector

needs a very specific instrument to hedge specific risks (geographic and socio-economic diversification)

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Investors

want a standardised and liquid product



Hedging longevity

Instrument \ Quality	Quality			
	Liquid	Hedge for basis risk*	Hedge for specific risk	Lack of correlation with other assets
Ultra-long government bonds	(✓)	✓		
Longevity bonds			✓	✓
Mortality linked derivatives and securities			(✓)	✓
Asset backed securities on basis of a pool of life insurance policies				(✓)

* i.e. imperfect hedging capacity



Role of the private sector

Advantages

- ◆ Life insurance companies are experts in longevity risks
- ◆ Why wouldn't the natural hedgers for longevity risk issue longevity bonds?
- ◆ Lack of correlation between life expectancy and all other assets should appeal to a broad range of investors

Barriers

- ◆ Hard to find a package that appeals both sellers and buyers
- ◆ Pure longevity risk transfer is possible only when risk is fully priced



Private sector approaches in longevity hedging

- ◆ Self-insurance and implicit coverage
- ◆ Reinsurance
- ◆ Sale of external buyout funds



What could governments do?

- ◆ Issue ultra-long government bonds (taking place today)
- ◆ Produce a reliable and widely accepted longevity index to be used as a benchmark
- ◆ Issue longevity bonds (more questionable)



Government issuance of longevity bonds

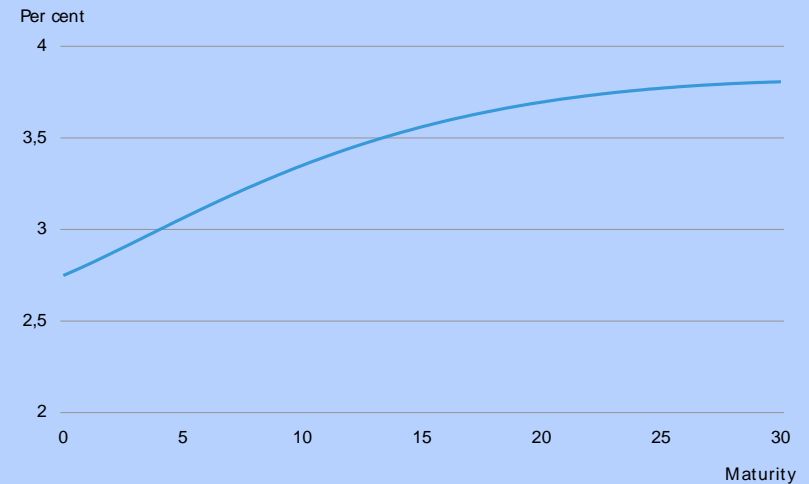
Pros:

- ◆ Could provide an unbiased benchmark similar to government yield curve
- ◆ Could be a catalyst in market development

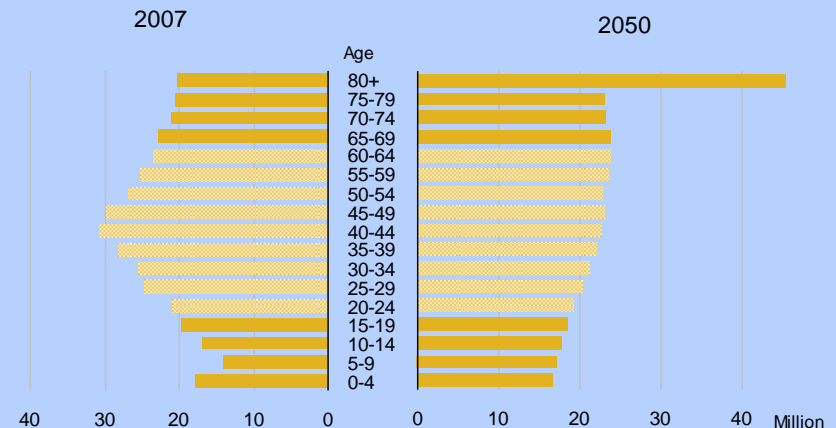
Cons:

- ◆ Governments are heavily exposed to longevity risk

Yield curve



Increasing old age dependency ratio, OECD countries





The end

Nothing is certain in life except death and taxes.

Franklin, 1789

Thank you for your attention