

Challenges of Longevity Risk facing Muslim Countries

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Presented by:

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Prologue

- In 1965, André-François Raffray, a lawyer in the southern French city of Arles, made a deal with a ninety-year-old local woman. In a contract relatively common in France, he agreed to pay her an income for the rest of her life in exchange for inheriting her house upon her death.
- Unfortunately for M. Raffray, the woman was Mme. Jeanne Calment, who went on to be the longest-lived person in the world at 122 years. She outlived the luckless M. Raffray, who paid more than the value of the house before pre-deceasing her.
- **“In life, one sometimes makes bad deals”,
said Mme. Calment of M. Raffray!!**

Definition

- 1. Longevity risk is the risk that individuals live longer than anticipated, with consequent shortfalls in incomes.
- 2. The risk that a pension fund or life insurance company takes on by offering its plans, due to the chance that the company could end up paying out more than anticipated due to increasing life expectancy. The risk is particularly high for any plans that ensure lifetime benefits for the recipient.
- Funded global longevity risk exposure has been estimated in excess of €15 trillion, based on worldwide pension assets in OECD registered countries.
(Source:CRO Forum 2010)

Causes

- improved socio-economic conditions
- increases in medical advancement –e.g. oncology and gerontology
- increase in health care services and alternative health care (sports)
- increased child survival and infectious disease control
- near-eradication of infectious disease & drop in mortality rate
- high standards of living (which includes diet, sanitation and healthcare).
- Public health campaigns and cultural change may also have a measurable influence on life expectancy.(Smoking)
- Increasing rates of chronic disease may now have a growing negative influence on life expectancy in both developed and developing countries. This is also the case for chronic disease risk factors, such as obesity and overweight. Indeed, recent research in the United States suggests that high obesity levels may lead to decreasing life expectancy in that country during the 21st Century (Olshansky, S. et al. 2005. Obstetrical and Gynecological Survey 60(7): 450-452).

Why care about longevity risk?

“By providing financial protection against the major 18th- and 19th-century risk of dying too soon, life insurance became the biggest financial industry of that century [...] Providing financial protection against the new risk of not dying soon enough may well become the next century's major and most profitable financial industry.”

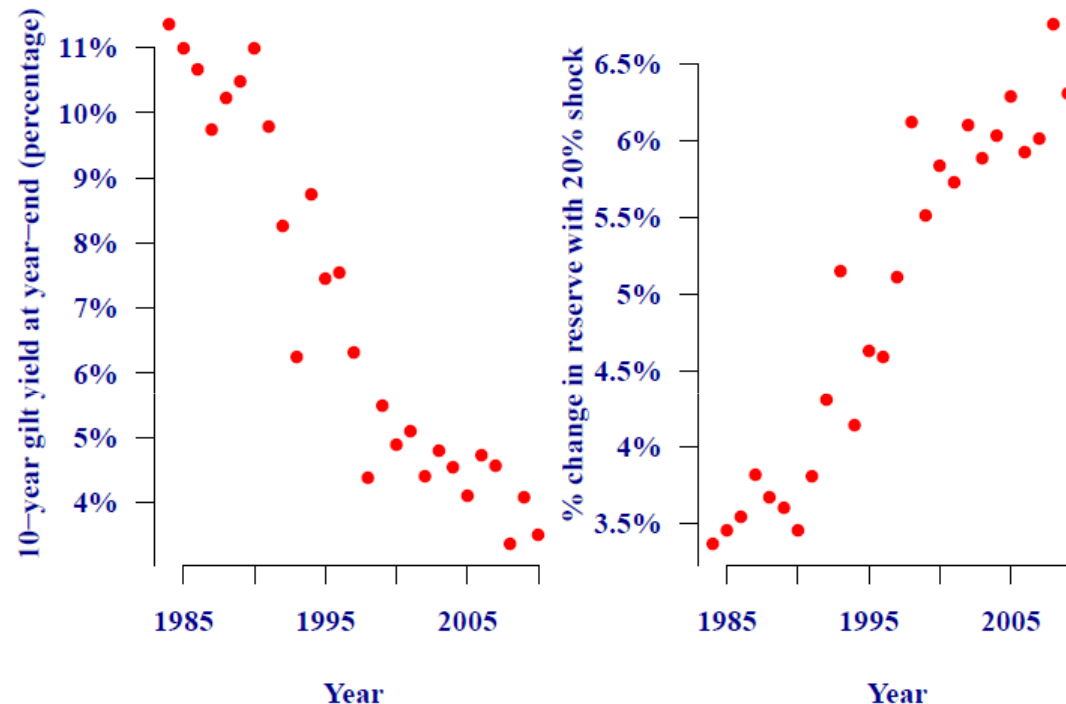
Drucker (1999)

Why care about longevity risk?

- Sensitivity of reserves to longevity risk has increased dramatically
- As interest rates fall, relative change in annuity factor increases
- Errors in estimating longevity have more impact than in the past...

Why care about longevity risk?

Gilt yields (left) and change in a_{65} from 20% mortality reduction (right):



Source: End-year yields from British Government Stock (10-year nominal par yield, series IUAMNPY from Bank of England) and own calculations for a_{65} using S1PA (males) and same yields.

Source: Longevitas Ltd (2011).

Solvency II

- The European Insurance and Occupational Pension Authority reported

“Life underwriting risk is the second most material module for life underwritings behind market risk. Within this lapse risk and longevity risk are the most two material submodules”

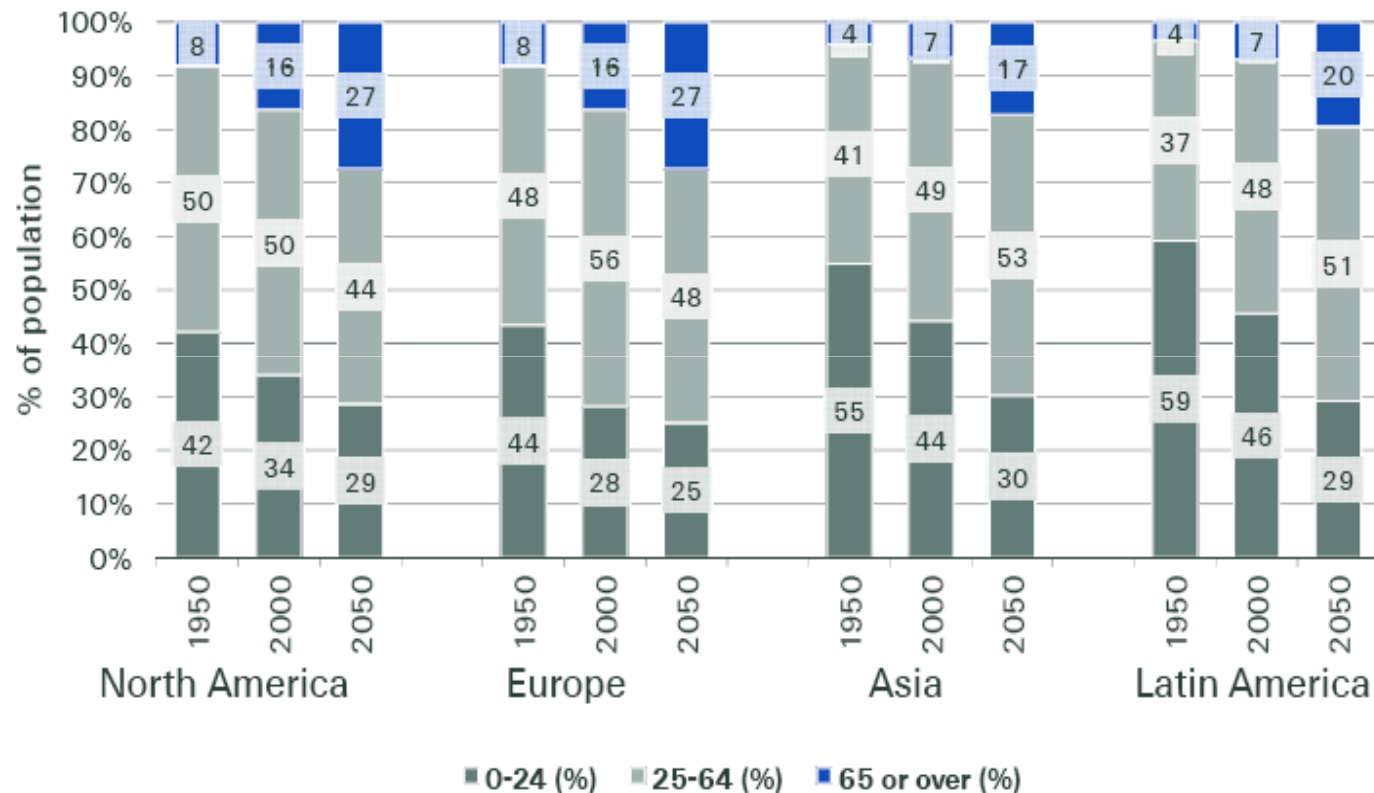
Source: EIOPA (2011) Report on the fifth Quantitative Impact Study on Solvency II, p.77)

First Pillar of Solvency II

- **MCR** → The floor at which a company is assumed to be at serious risk of default and will be subject to immediate regulatory action.
- **SCR** → Determine if a company has sufficient cushion to handle a responsibly high level of unexpected losses (i.e. based on a confidence level of 99.5%) over a one year time horizon. Longevity risk is to be catered for in here!!!

Societies Around the World are Ageing !!!

Age distribution, in %, 1950-2050



Source: United Nations, World Population Prospects, 2008 Revision.

Demographic Distribution of the Muslim World

- Estimated World Muslim Population 1.57 billion = 23% of the world's population.
- 62% → Asia-Pacific region,
- 20% → Middle East & North Africa
- 5% → Sub-Saharan Africa
- 2.4% → Europe and
- 0.4% → Americas

Source: Upcoming Demographic Changes in Islamic Countries Conference Report 2010

Demographic Distribution of the Muslim World

- Although the highest number of Muslims lives in the Asia-Pacific area, the highest concentration as a proportion of the overall population is in the Middle East and North Africa with 91.2%.
- This is followed by Sub-Saharan Africa with a concentration of 30.1% and then Asia-Pacific, where the proportion is 24%.

Malaysia

- Employee Provident Fund (EPF) – is that 90% of contributors have less than 100,000 Malaysian Ringgit.
- About 70% of retirees spend their EPF capital within three years of stopping working.

Pakistan

- The most optimistic estimate for Pakistan achieving replacement level fertility is by 2030.
- The country's population, currently 173 million, is expected to rise by 37 million by 2020 and 67 million by 2030.
- The working age population will increase sharply over the next 20 years, with a likely jobs gap of 62 million for women and 22 million for men.

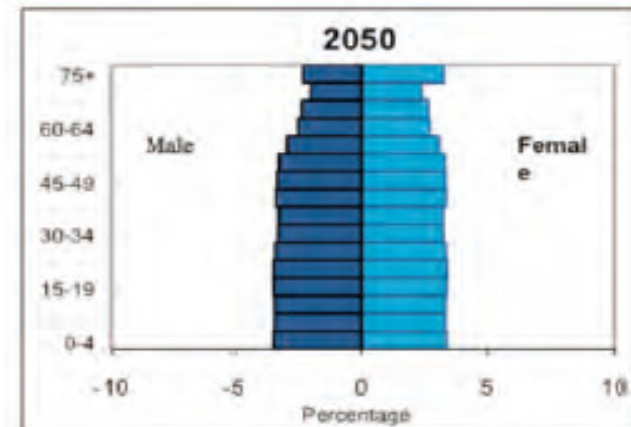
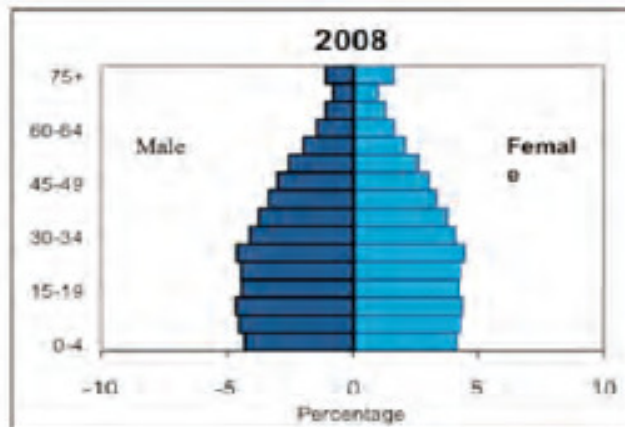
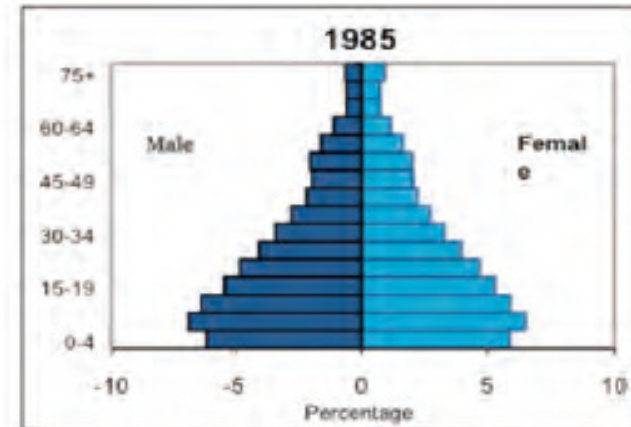
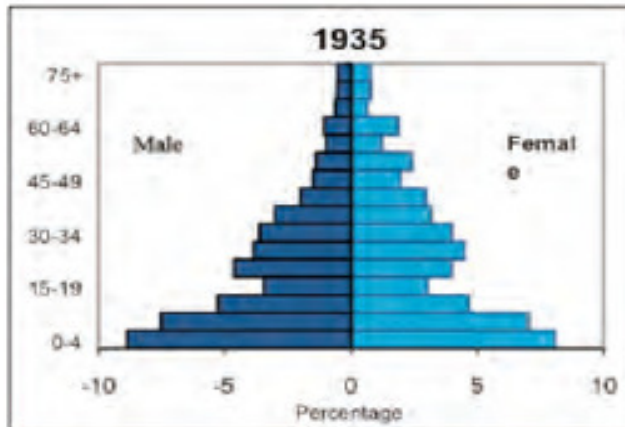
Turkey

- 73 million people but expected to reach 95 million by 2050.
- Life expectancy has improved steadily and is now at 74 years for females and 69 for males. Increased life expectancy in recent decades has been driven by lower child mortality rates, coupled with the rising life expectancy for the adult population.
- Fertility rate has dropped!!

Turkey

- The population of Turkey is expected to reach 95 million by mid-century. The young (0–14) population will stabilise and the size of the economically productive age group will double within the next 25 years.
- Thus, Turkey's population shows potential for rapid ageing, and the growing proportion of elderly (estimated at 19% by mid century) will place high demands on social and economic life.

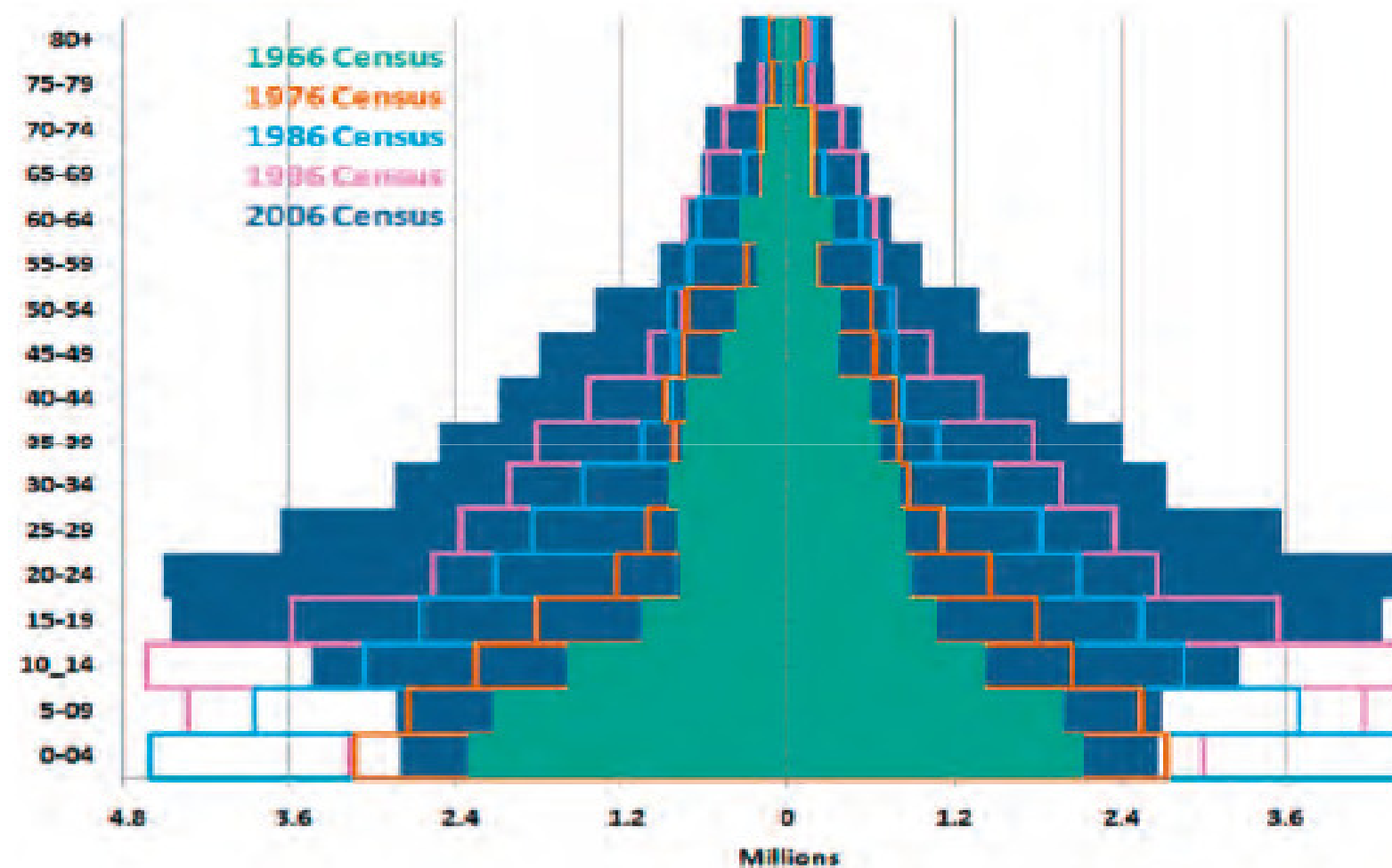
Vacillating Turkish Demographic Trend



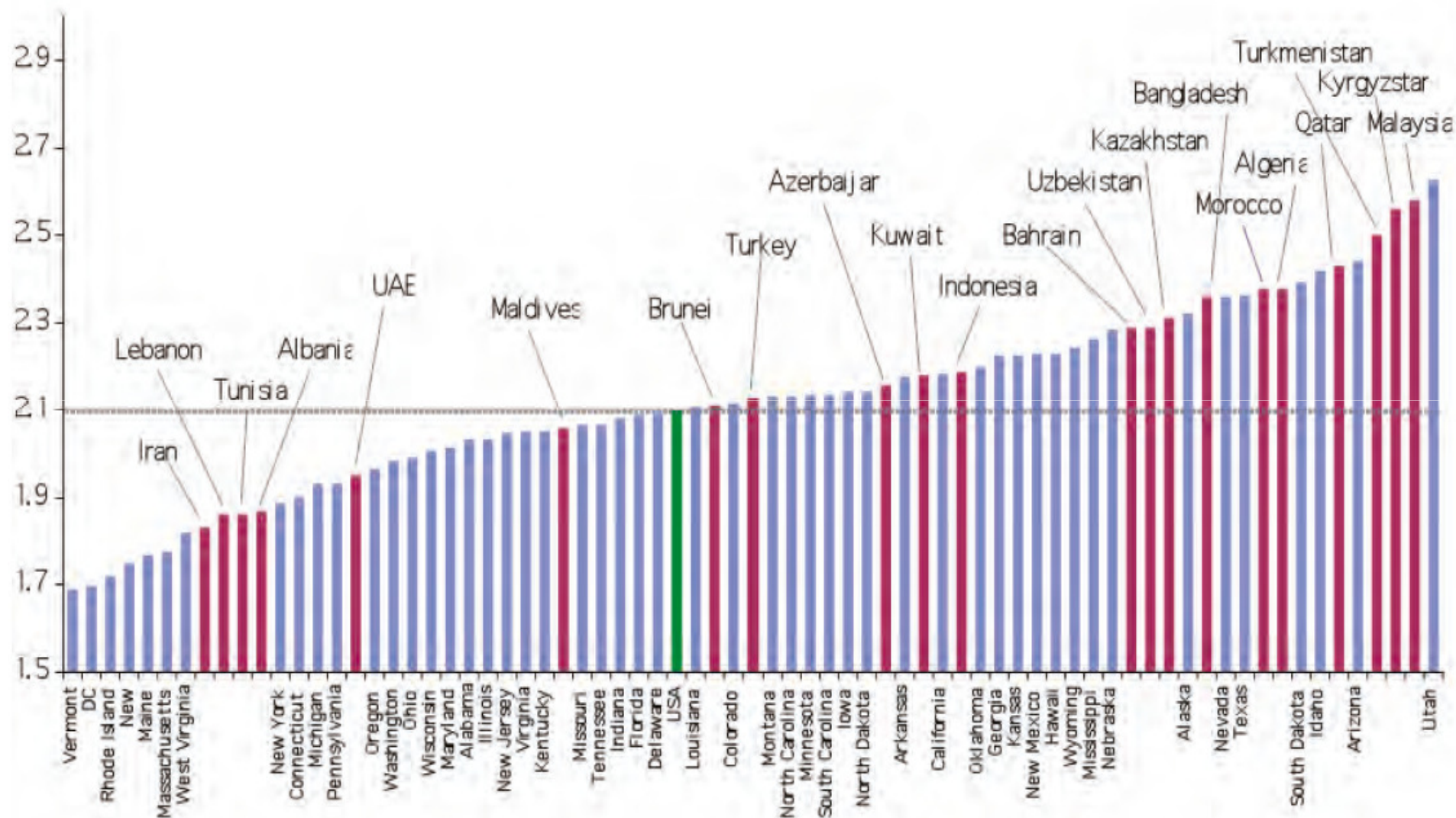
Iran

- Striking demographic features is a huge 15–29 age group, which will continue to grow for the next ten years. Life expectancy has doubled over the last 50 years, reaching 71 for women, and this is expected to rise to 78 in the coming decade.
- Drop in fertility rate is observed.

Population Pyramid of Iran In Last 5 Censuses



Drop in Fertility Rate in 21 Muslim Majority Countries



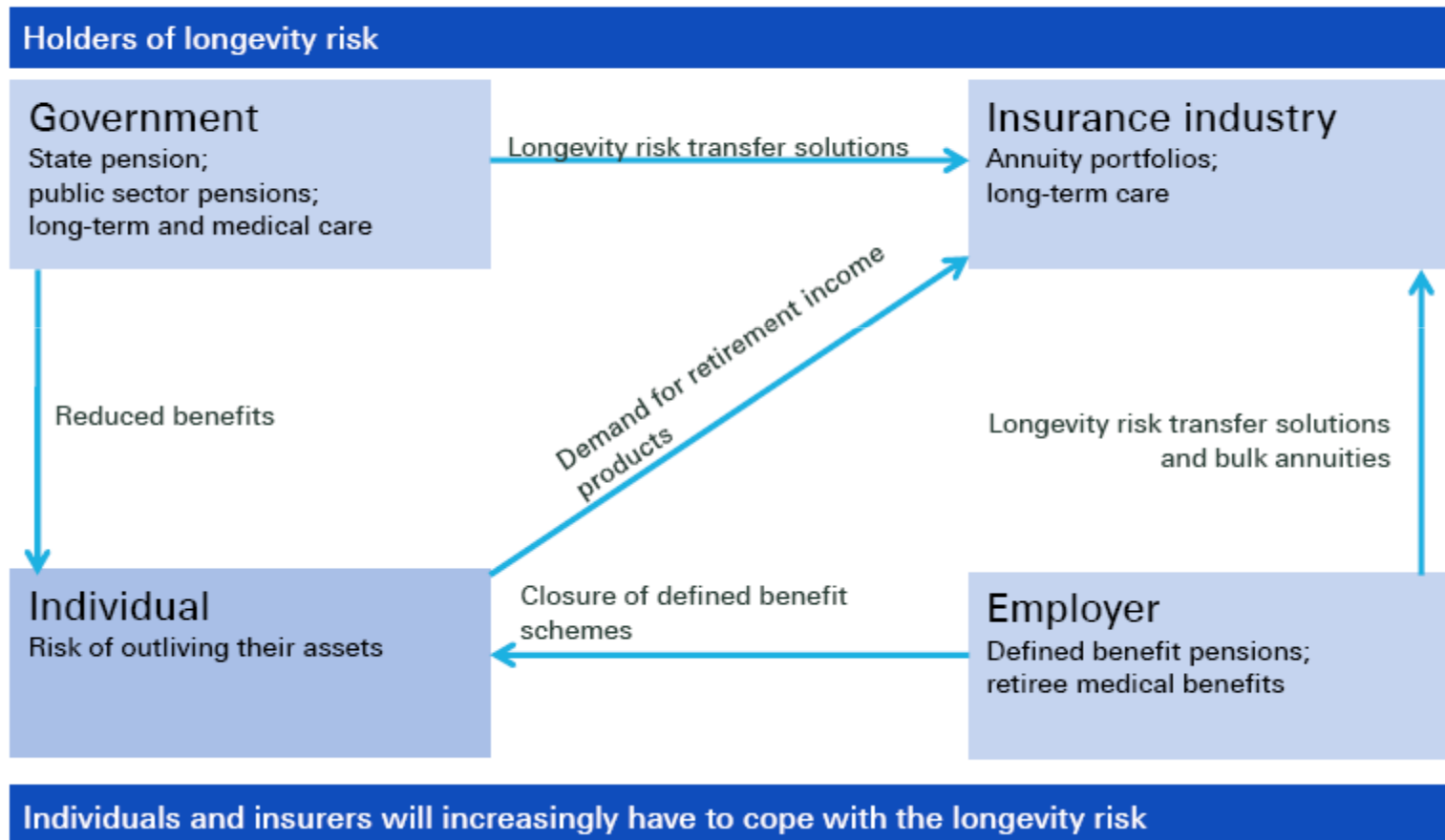
Source: World Demographic & Ageing Forum 2010,

Fertility Rate Drop and Increased Ageing

- A major challenge of the rapid decline in fertility in Islamic countries is that of the “youth quakes”, which some Muslim countries are experiencing and others will experience in the future. These pose huge challenges with regard to the provision of education and then jobs.
- A further challenge is the ageing of populations. In a decade or so, some Muslim countries may be approaching the same level of “greying” as the Western world is already experiencing today.

Structural Impact

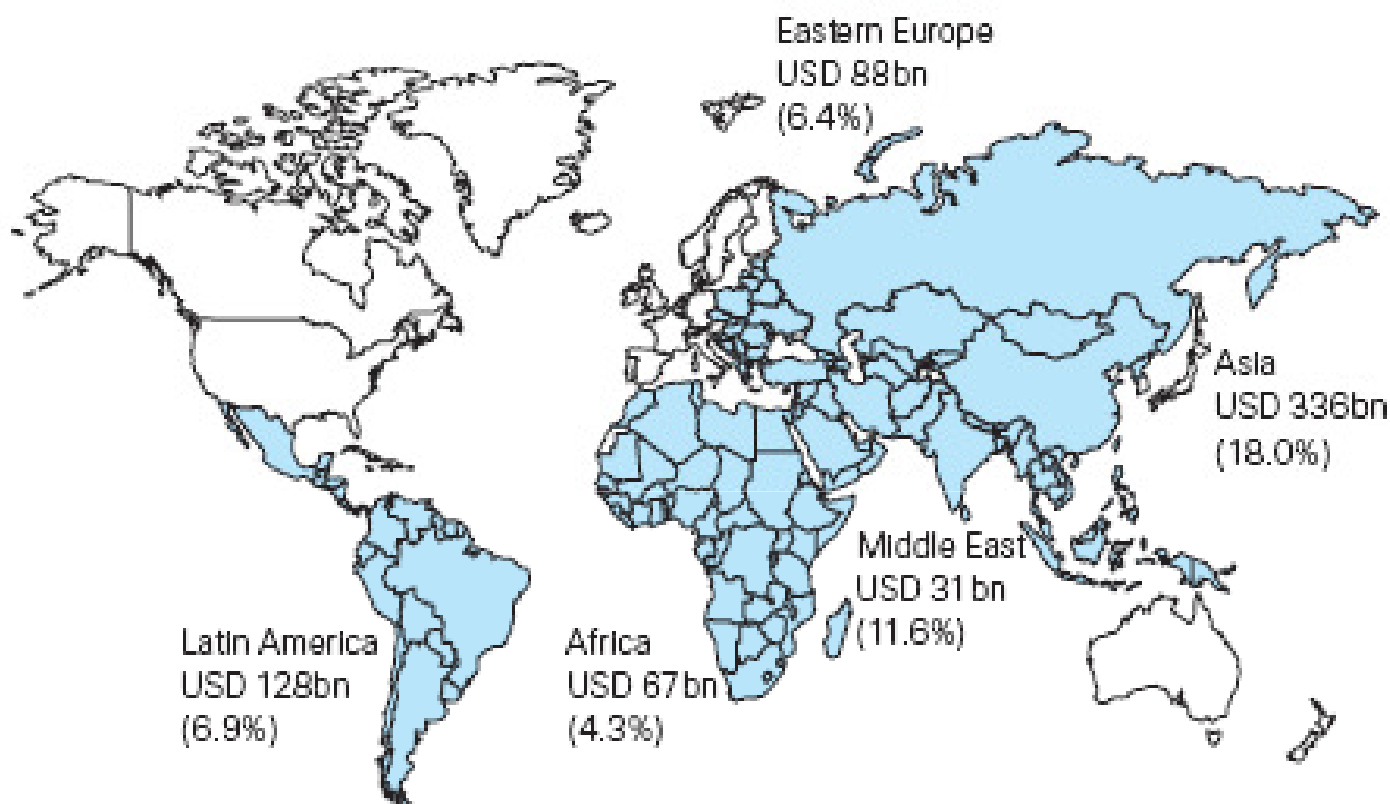
Shifting balance in meeting costs of retirement



Maqasid Shariah

- 5 maqasid istiqra'i
- **Hifz al-'Irdh** (Human Dignity) need to be there so as to deal with the longevity risk issue.

Insurance Market in Emerging markets (in blue) in 2010 and their growth rates. It shows towards an awareness for mitigating risk in Muslim World



Note: Regional premium volume in 2010 (USD billions), with real compound annual growth rate (CAGR) 2001–2010 in brackets.

Source: Swiss Re Economic Research & Consulting

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Relevant Products for Older People

- ■ Life insurance
- ■ Viatical insurance
- ■ Impaired Annuities
 - – voluntary
 - – involuntary
- ■ STOLI
- ■ Long term care insurance
- ■ Medical expenses insurance



Mortality/Longevity Risk

Risk Management of Longevity Risk

- ❖ insurers can retain these risks as a legitimate business risk;
- ❖ insurers can diversify these risks across product ranges, regions and socio-economic groups (an example how to hedge through such a balance of gains and losses on the life and the annuity book is given e.g. in Cox and Lin (2007));
- ❖ insurers can enter into various forms of reinsurance (and then the reinsurers can use e.g. the securitization);
- ❖ pension plans can arrange a full or partial *buyout* of their liabilities by specialist insurer;
- ❖ insurers can securitize a line of business ;
- ❖ mortality and longevity risks can be managed through the application of mortality-linked securities and derivatives (this approach differs from the securitization of a line of business from the previous point since such securities have cash-flows that are purely linked to the future value of a mortality index, rather than being a complex package of business risks).

Fiqhi issues

- The existing products are infested with riba, gharar fahish, ghaban fahish, maysir etc.
- Qard and debt are becoming “Islamic” products!!!
- Risks are becoming “Islamic” products!!!

Legal Issues

- The financial products are legal constructs which inherently brings in legal risk which in turn has the ripple effect of shari'ah risk.
- Lehman Brothers International (Europe) [2010] EWHC 3372 (Ch)
- Lehman Brothers Special Financing Inc . [2011] EWHC 718 (Ch)
- Pioneer Freight Futures Company Ltd ("Pioneer") v Cosco Bulk Carrier Company Ltd ("Cosco") [2011] EWHC 1692 (Comm)
- Bulk Trading SA ("Bulk") v Britannia Bulk plc ("Britannia") [2011] EWHC 692 (Comm)
- Need for a proper **legal transplant** and creativity. Look in terms of real economy not only financial economy.
- **Hiyal is not a sustainable solution!!!!!!.**

Thank you / Shukran

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