The Need for Longevity Sukuk for Takaful-Based Pension Provision

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Outline

- 1. Contextualisation of Ageing Phenomenon.

. 2. Some Statistics for Muslim population that may highlights the need to look into the longevity risk.

- 3. Longevity bond and Government intervention

- 4. Need for Longevity Sukuk

"The first person who will leave to see their 150th birthday has already already been born"

Dr Aubrey de Grey's Biomedical gerontologist.

Source: Reuters Mon 4 July 2011.

Invasion of the Centenarians!!

An average of three months is being added to life expectancy every year at the moment and experts estimate there would be a million centenarians across the world by 2030.

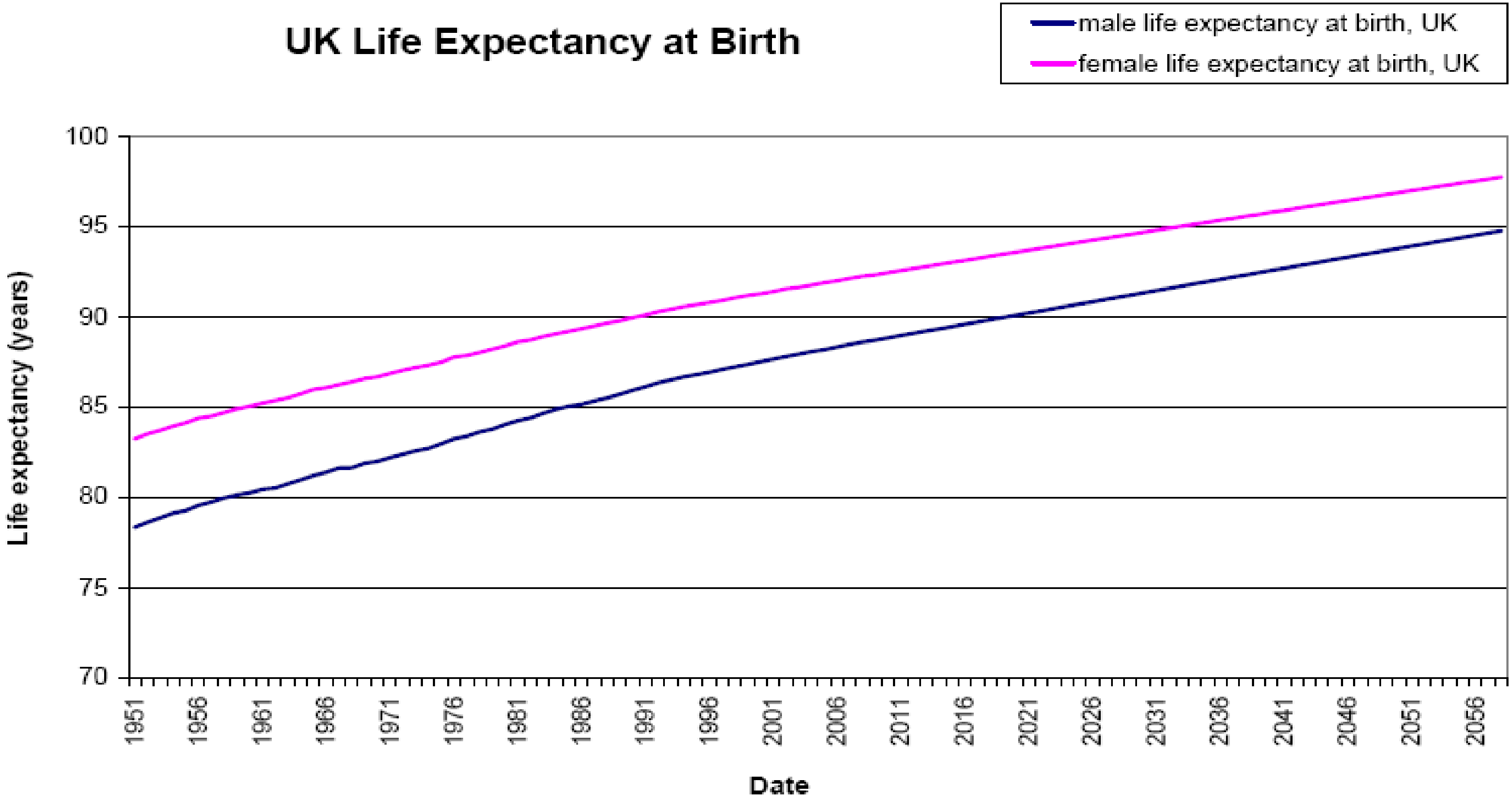
In UK: 12,400 in 2011;   107,700 Centenarians by 2036 and 100 above 119 years

In Japan: 44,00 centenarians in 2010 already

Nūh (A.S.) 950 years

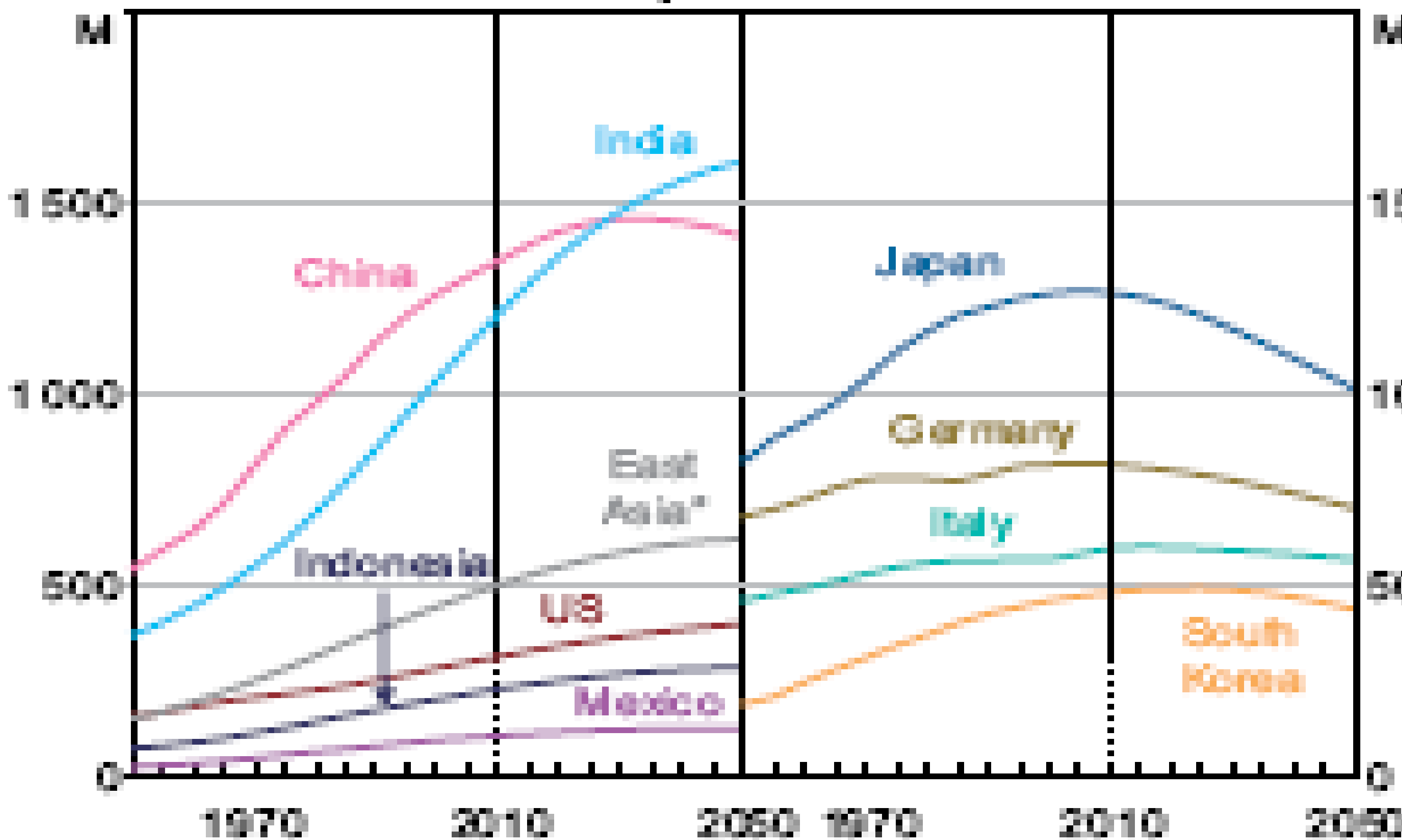
Hadith (60-70 years)

UK LIFE EXPECTANCY AT BIRTH 1951-2058 (PROJECTED)



Source: Office for National Statistics, Cohort Life Expectancy Tables (UK)

Population



* Hong Kong, Indonesia, Malaysia, the Philippines, Singapore, South Korea, Taiwan and Thailand

Sources: United Nations; US Census Bureau

Basic Statistics for Middle East

- 1950 – 2000 explosive population growth 92m to 349m.
- Now there is a demographic transition.1.3% population growth rate for 2000-2050 which half of the period 1950-2000.
- Dependency ratio was 1 in 1960-1980, 2000:0.75 and in 2030:0.58
- But as elderly people increase dependency ratio will reach 0.66 in 2050

Percentage of the youth cohort *aged 24 years and below* drops over the next three decades

State	2000	2020	2030
Egypt	55.7	32.5	28.1
Turkey	50.4	39.2	35.7
Iran	59.3	42.4	38.9
Pakistan	61.0	56.2	51.4
S. Arabia	62.3	56.1	52.1
Iraq	61.7	53.9	47.2
Yemen	65.3	68.4	65.7
Algeria	56.5	40.9	37.4
Indonesia	50.7	39.5	36.4
Morocco	55.1	43.4	38.4

Source: UN World Population Statistics

Retirement

- Working age ratio has been relatively high since 1950 reaching 9.6 in 2000.
- It is expected to reach 3.2 in 2050.
- The demographic dividend is when the middle-aged save for their retirement, because those savings could fund investment that raises national income. Policies for savings need to be enhanced.
- A major shift in Middle East is the role of women in the labour market is on the increase!! Need to cater for them as well.

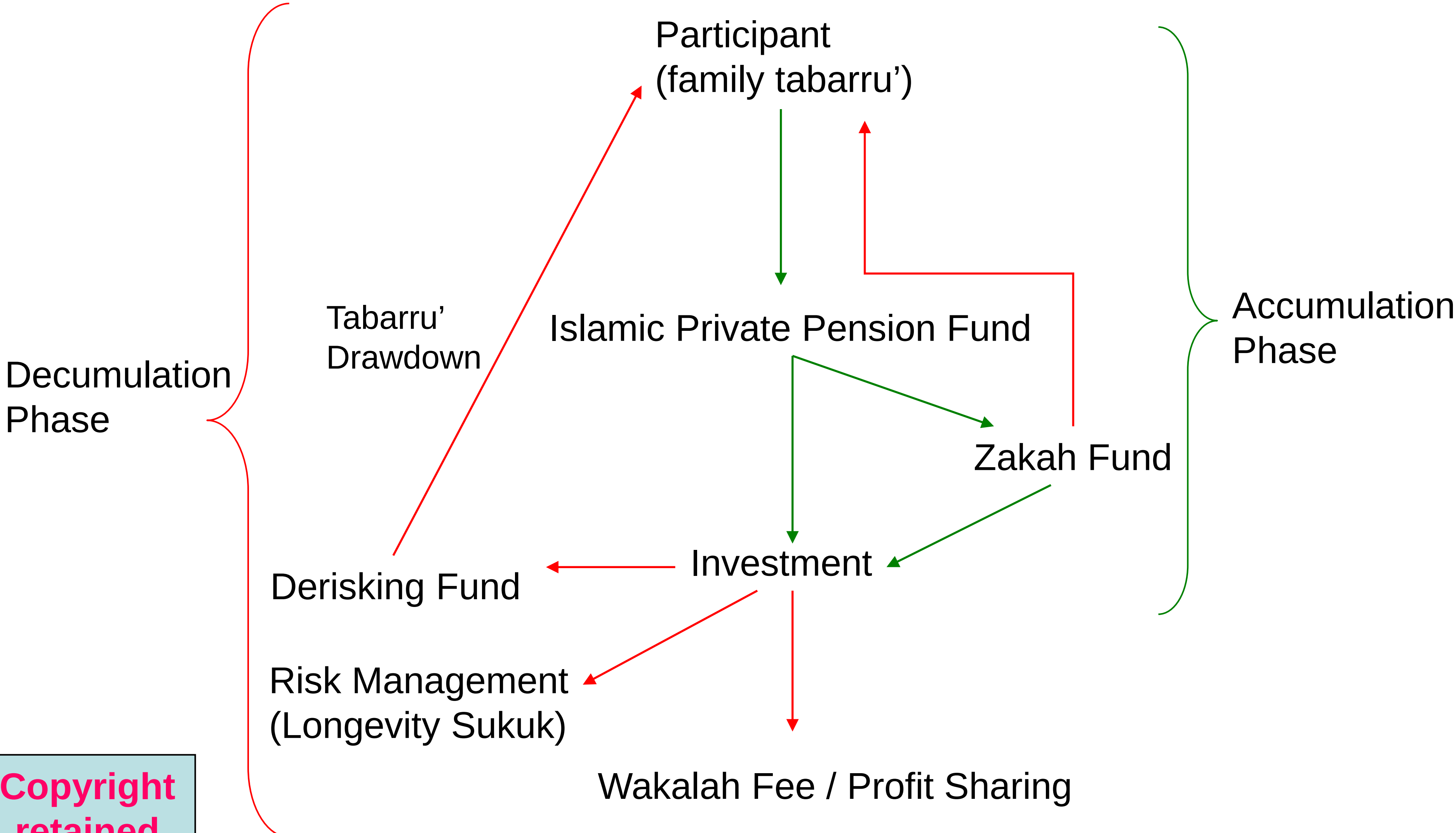
Need to shift towards Private Pension

- The situation in the Middle East and also in most Muslim countries is that there is budgetary constraints for contributing towards old age state pension.

- It is becoming less reliable and also volatility of investment market is becoming more unpredictable with regular bubbles.

- The UN advise for the 3 pillars for maintenance in old age: State pension, private pension and other sources .

Suggested Model for Private Islamic Pension Fund



Longevity Risk

- *The risk that a policyholder lives longer than anticipated.*

- *Longevity risk is associated with (re)insurance obligations (such as annuities) where a (re)insurance undertaking guarantees to make recurring series of payments until the death of the policyholder and where a decrease in mortality rates leads to an increase in the technical provisions, or with (re)insurance obligations (such as pure endowments) where a (re)insurance undertaking guarantees to make a single payment in the event of the survival of the policyholder for the duration of the policy term.*

Decomposition of longevity risk

Total longevity risk

=

Aggregate longevity risk

(Trend risk)

+

Specific longevity risk

(Random variation risk)

Government needs to provide hedge

Private sector can hedge

Source: Pensions Institute

What is a Longevity Bond?

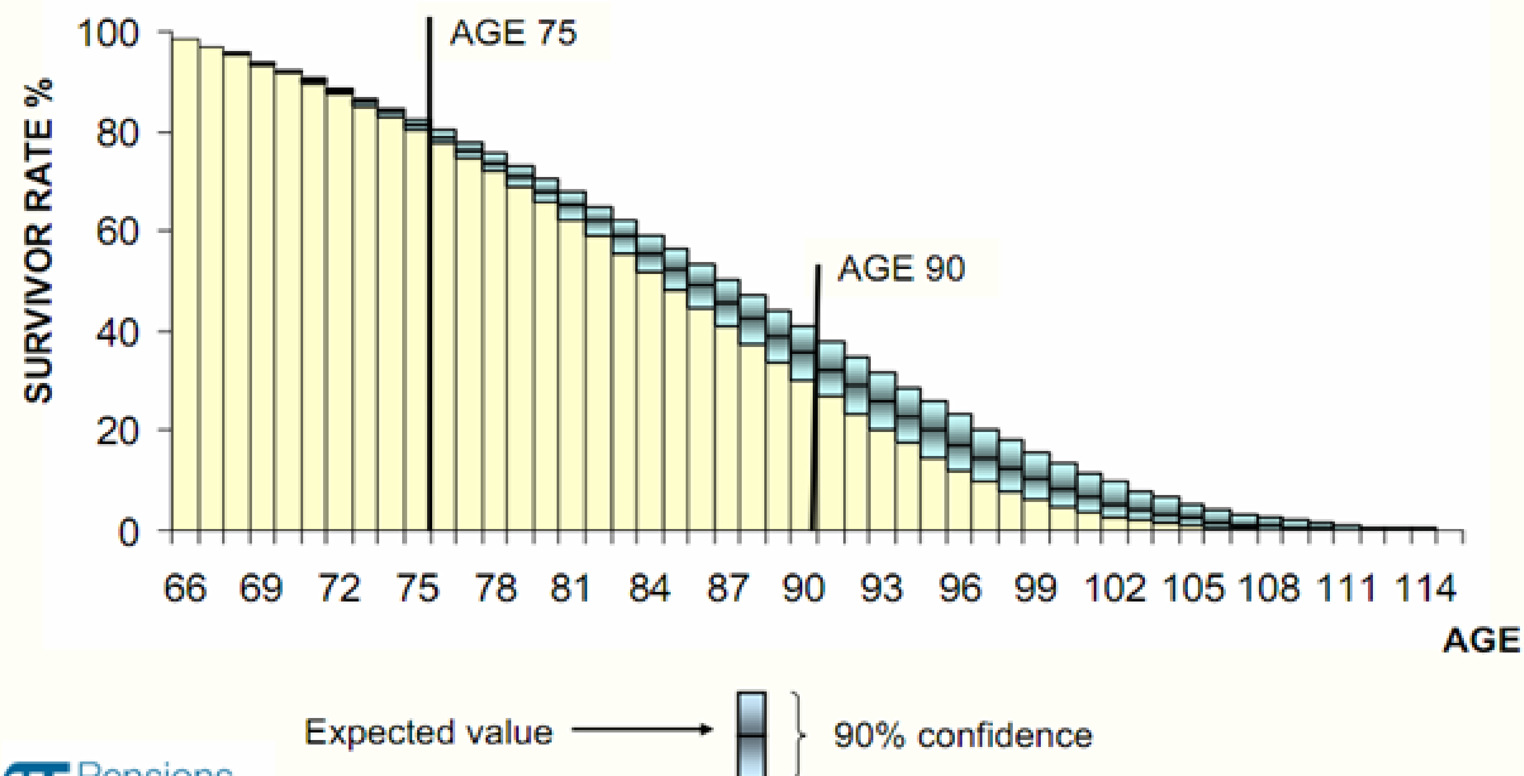
- **Longevity bonds pay declining coupons linked to the survivorship of a cohort of the population, say 65-year-old males**
- **The coupons payable at the age 75 will depend on the proportion of 65-year-old males who survive to age 75**
- **The coupon payments continue until the maturity date of the bond: e.g. when the cohort of males reaches age 105**
- **A longevity Bond pays coupons only and has no principal payment.**

Why Government Should Issue Longevity Bond

- **Pension funds and annuity providers can transfer longevity risk through the financial system or directly to individuals.**
- **Due to the large volume of the risk Government has to be involved because:**
- **Interest in ensuring an annuity market**
- **Interest in ensuring an efficient capital market for longevity transfer**
- **Best placed to engage in intergenerational risk sharing**

Survivor fan chart

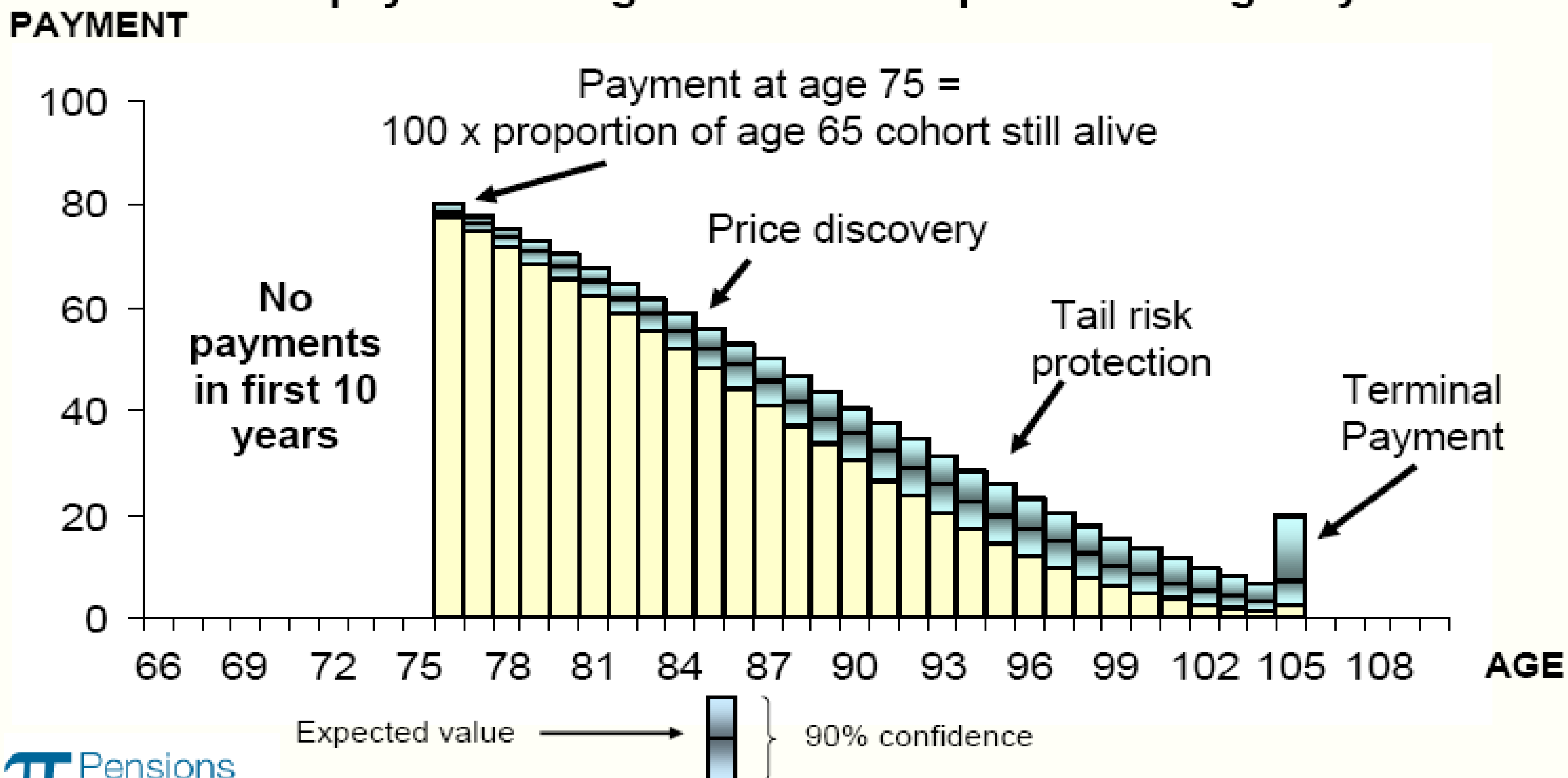
(Cairns-Blake-Dowd model)



Pensions Institute

What is a Longevity Bond?

Longevity Bond payable from age 75 with terminal payment at age 105 to cover post-105 longevity risk



Source: Cairns Blake Dowd model

Impact on (Re)Takaful Companies

- Solvency II, if adopted, will require insurers to hold significant additional capital to back their annuity liabilities if longevity risk cannot be hedged effectively or marked to market.

- Global pension private-sector liabilities are of the order of $25trn. UK government-backed longevity-linked liabilities exceed £2trn.

- With increase life expectancy there will be 1 unhealthy concentration of risk, 2. under solvency II insurance liabilities are to increase by the addition of a market value margin (MVM) reflecting the cost of capital to cover "non-hedgeable" (6% cost of capital above risk-free rate when calculating (MVM).

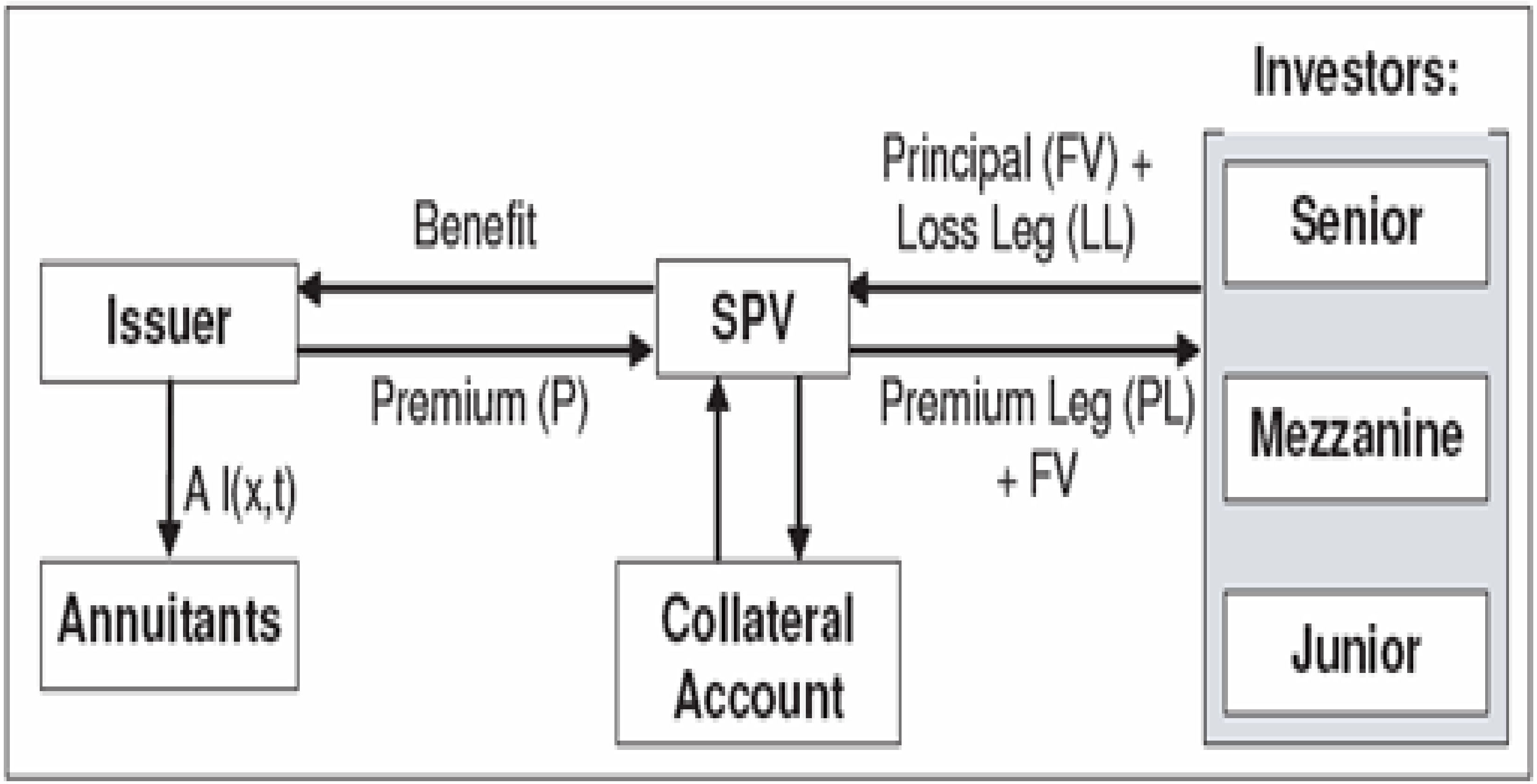
Longevity Sukuk Potential

The underlying spirit of Takaful fits squarely in the government longevity sukuk concept through the mechanism of wa'ad. No repayment of principal involved. Alternatively a investment waqf mechanism can be designed.

Assets:

- **Corporate – government longevity sukuk**
- **Sovereign – normal investment sukuk**

Proposed Tranched Longevity Sukuk



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