Impact of longevity risk to the pension system and mitigation
China faces the risk of high life expectancy and aging before the population becomes rich, which are key challenges to the pension system reform.

**Per capita GDP (USD)**

- China
- US
- Japan

**Fast aging population**

- Society with high pct of aged population
- Society with very high pct of aged population

**Avg. lifespan by nation (years)**

- China
- Japan
- US

SOURCE: UN; IHS
Over the past 5 years, the Chinese government introduced a series of pension policy reforms

“Roll out personal tax-deferred pilot on commercial pension schemes”

“Further enhance personal tax-deferred commercial pension schemes”

“Improve on basic pension system and build a multi-tiered pension system”

“Deepen commercial pension supply-side structural reform”
Good practice in creating “longevity risk” trading market, product design, investment solutions and hedging in coping with longevity risk

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<th>Create “longevity risk” trading market</th>
<th>Incubate an effective “longevity risk” trade market, partly as the effort to diverse &amp; deepen China capital markets</th>
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<td>Innovative product design</td>
<td>Optimize the product design so that it contains less longevity risks</td>
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<td>Transfer “longevity risks” to suitable counterparts via hedging</td>
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Longevity risk trading market: establish an effective risk trading market to hedge longevity risk

**“Mortality risk”** is the most effective hedge against “longevity risk”

- Longevity is a risk to annuity but earning to life insurance

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1 Mortality risk refers to the risk of a person’s life being shorter than “expected”
2 Longevity risk refers to the risk of a person’s life being longer than “expected”

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Government shall actively establish the “longevity risk” trading market

- Some investors (life insurers) need to look for targets in “longevity risk” trading market as a hedge against longevity risk
Longevity risk trading market example: Kortis “Longevity Bond” by Swiss Re

- **Background:**
  - In December 2010, Swiss Re issued longevity bond through Kortis Capital Ltd., and got initial success, transferring longevity risks to capital market investors
    - Value: 50 million USD
    - Maturity: 8 years

- **Features:**
  - Event triggered longevity divergence index bond, can effectively diverse risks, and lowering the risks for investors
  - Rate BB+ by Standard & Poor’s, proving a foundation for secondary market trading
  - Relatively short maturity of 8 years, meeting the needs of most capital market investors willing to take on longevity risks

Source: McKinsey Research, Blake/Cairns/Dowd: Living with mortality; Longevity bonds and other mortality-linked securities, 2006; ILS development analysis
Innovative product design: adjust pricing strategy and coverage to lower risks

- **Strategy 1: more precise life chart**
  - Currently, industry life chart is updated every 10 years. Insurers can update it more frequently (every 5 years) and increase demographic segments (currently only male and female)

- **Strategy 2: adopt variable guarantee rate when pricing**
  - Currently pension products are priced with fixed pricing interest rates. Insurers can consider to adopt variable guarantee rate, thereby lowering overall risk

- **Strategy 3: life and annuity product combination**
  - Integrate the two types of products and sell as a combination, thereby minimizing the net risk resulting from longevity and death
Optimize investment solutions: diversify investment approaches/channels, enter into elder services sector to control the overall risk

- **Strategy 1: invest in long-term asset category**
  - Invest into long term asset category to match the long liability duration of annuity product to mitigate overall risk

- **Strategy 2: invest in “reverse risk” business to hedge risk**
  - Invest in industries that favor longevity, e.g., nursing homes, senior travels, bio-healthcare startups

- **Strategy 3: enter/operate “elder service” industry to lower costs**
  - Combine financial solution with elder service, e.g. enter/operate elder service industry to lower the cost of services procurement
Build risk hedge scheme: fully play out the functions of the “market” to shift risks

- **Strategy 1: longevity swap**
  - Locate the counterparties who naturally favor “longevity risk” (e.g., life insurers) for longevity swap

- **Strategy 2: IR swap, CPI swap**
  - Leverage IR swap, CPI swap and other derivatives from the market to mitigate uncertainty risk

- **Strategy 3: cooperate with re-insurers**
  - Enhance involvement of reinsurers: insurers transfer the part of risk that insured’s life being shorter than “expected” to reinsurers
Thank you!