Longevity risk – Can we manage it?

As life expectancy continues to improve around the world, problems arising from ageing are becoming more severe, requiring a robust longevity insurance market to be in place. Despite this pressing need, longevity management and products are under-developed in Asia. A better understanding of the underlying issues will be key to devising innovative and feasible solutions that are practical and theoretically sound. **Dr Jackie Li** from the **Insurance Risk and Finance Research Centre** (IRFRC) discusses the fundamental problems and examines possible directions that the private sector may take to manage longevity risk.

It is a global phenomenon that life expectancy continues to increase, with no sign of an end or reversal of the trend in the foreseeable future. This is particularly so for the Asia-Pacific region.

Increasing life expectancy

In 1980, females at age 65 were expected on average to live for another 17 years. In 2009, that figure has risen to 22 years. Among males, life expectancy of 65-year-olds has increased from 14 years to 18 years over the same time period (Figure 1). This works out to an average increase of about 1.5 years per decade, and the upward trend looks to be a persistent one. The increase in life expectancy reflects significant development of the economy, living conditions, education, health care, and medical technology. However, it also raises serious concerns about longevity risk, which has different implications for different parties.

What is longevity risk?

For individuals, rising life expectancy increases the risk of outliving financial resources that had been set aside for their retirement years. For an insurer or a pension scheme, improving mortality rates raises the risk of payouts exceeding forecasts. Roughly speaking, there are two types of longevity risks. Non-systematic risks arise from random fluctuations between individuals and can be mitigated by increasing portfolio size. Systematic risks, on the other hand, affect all individuals coherently and cannot be diversified by pooling. Individuals would probably be more concerned about non-systematic risks, while insurers would focus more on managing systematic risks.

The missing longevity insurance market

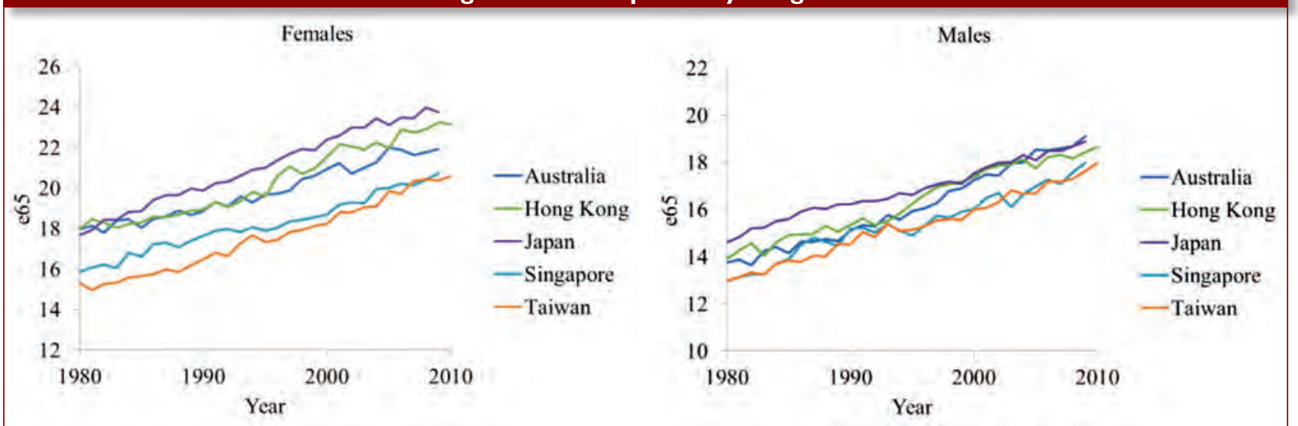
Rising longevity, ageing populations, and limited fiscal resources for public pension programmes mean there is a genuine and pressing need for a strong and well developed longevity insurance market.

In theory, a life annuity would be the optimal solution for an individual seeking to manage his longevity risk. Such an annuity can be designed and structured in many ways to meet his needs. In practice, however, longevity insurance markets are very thin in Asia, as with the rest of the world. Japan, whose population has the highest life expectancy in the world, has to date seen rather limited development of longevity insurance products, especially after the recent financial crisis.

Despite the great need for longevity insurance, some fundamental problems hinder the growth of this increasingly important market. Demand side constraints include adverse selection (which drives prices too high for consumers), bequest motives, and poor financial planning, particularly reluctance to plan rationally for one's final years and a desire to maintain financial flexibility for potential future expenditure. Other market barriers include a lack of understanding of longevity risk and the products that address that risk, a lack of annuity choices, and distrust of insurers. On the supply side, constraints include uncertainty about future mortality rates, investment returns, interest rates, and inflation.

Reinsurers also appear to have limited appetite for such risk, while credit-worthy long-term bonds are in short supply. In a word, individuals are not keen to buy longevity risk products, and insurers are not interested to offer them.

Figure 1: Life expectancy at age 65



Three possible directions

Possible solutions to the problems mentioned above include increasing variety in product design, developing the 'life market', and government initiatives. Several advanced economies, such as the UK and the US, are moving actively in these directions.

Product design

A standard life annuity typically removes both longevity and investment risks from an individual, making it very expensive for consumers. A more flexible sharing of risk between consumers and insurers will allow for products that are more marketable to the public while remaining viable for insurers. Some existing examples are listed below:

- Variable annuities – Payments are adjusted with the investment performance of the underlying assets. Investment risk is thus shared between insurer and consumers.
- Participating annuities – Consumers share in certain investment and mortality gains of the insurer.
- Impaired life annuities – These are for consumers whose health condition is worse than average. They are priced lower than a standard life annuity.
- Reverse mortgages – Consumers are allowed to borrow against the value of their home, releasing the wealth tied up in the property.

A variety of features can be added to make these products more appealing to potential customers, while easing risk management for insurers. However, it appears that wider adoption of these innovations requires development of a robust "life market" and provision of suitable government incentives.

Developing the market

The "life market" is a market where (standardised or over-the-counter) mortality- and longevity-linked securities or liabilities are traded. This allows insurers and reinsurers to spread their risks among each other and with investors who want to diversify their portfolios with assets that are uncorrelated with traditional financial markets.

There are a number of recent developments in this area in the UK and Europe. For example, new life companies have been set up to buy out the Defined Benefit (DB) pension liabilities of employers in the UK. Some reinsurers and investment banks have constructed survivor bonds, survivor swaps, and survivor indices. In particular, the Life and Longevity Markets Association (LLMA) was established in 2010 by a large number of insurers and investment banks to promote the development of a liquid "life market".

Government initiatives

Governments can also play an important role in overcoming the various demand and supply constraints faced by the longevity risk market. Firstly, a country's retirement system has a significant impact on the development of the longevity insurance market. For example, countries with some form of mandatory annuitisation, like the UK, have more developed annuity markets. Secondly, there is much scope to increase promotion and education on managing longevity risk to the general public. Thirdly, the government can provide guarantees and sponsorships to encourage insurers to offer products that it deems important for the country. For example, the US reverse mortgage market was stimulated by a government-sponsored mortgage insurance programme. Governments may also increase issuance of long-term bonds, that could help insurers hedge interest rate risks.

Apart from the above, governments can also promote greater active academic and industry research, with a more comprehensive collection and study of insured and annuitant mortality experience. These would greatly enhance industry knowledge of longevity risk and enable industry practitioners to design, price, and hedge longevity products with more confidence. In addition, more data on expenditures of the elderly can be collected, and perhaps a separate consumer price index can be constructed with these data. Such information would be useful for consumer education and product development.

In conclusion, the management of longevity risk is still in its infancy, and more active discussion, research, and participation is needed from both industry practitioners and academics. With the right mindset and patience, there is a good chance that decent solutions to this pressing and unavoidable challenge will be found in due course.

Dr Jackie Li is an Assistant Professor at the Nanyang Business School, Nanyang Technological University and is with the Insurance Risk and Finance Research Centre.