## LONGEVITY ASSETS

# An introduction to synthetic micro-longevity instruments

As more and more investors and asset managers are looking to diversify their portfolio to include holdings in alternative asset classes which combine low volatility and stable growth, so longevity assets are steadily gaining traction, write David Rawson-Mackenzie and Pollyanna Wan

Longevity is an investment risk centred around how long people live.

It has low volatility because life expectancy changes are slow to emerge and mortality tables are adjusted only once every seven years. It is typically segregated into two types, micro-longevity and macro-longevity.

Micro-longevity risk typically refers to a small pool of demographically wealthy lives, between 200 and 1000, that have been medically underwritten on an individual basis. Macro-longevity risk references a much larger pool of lives, in the range of tens of thousands, where no underwriting has been performed.

Historically, micro-longevity transactions focused primarily on the acquisition of life settlements – US life policies purchased in the secondary market. These first generation assets are now complemented by a range of synthetic instruments including swaps, longevity linked notes and longevity indices with risk profiles linked to the survival of the reference pool of individuals.

The attraction of using synthetic instruments to take on micro-longevity risk is that they are both standardised and tradable and so can add liquidity to a fund.

They also resolve a number of risks associated with physical products including time to ramp up, portfolio lumpiness due to variable returns, origination, legal and tax risks. Other concerns such as lapse or documentation risk because of human error are also removed. As awareness of synthetic micro longevity instruments has increased, so many investors want to know more about them, how they work in practice and their relative advantages and disadvantages.

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### LONGEVITY-LINKED INDEX

Although the concept of a longevity-linked index is better established in macro-longevity, it is slowly taking hold in micro-longevity as well. It references a large pool of medically underwritten lives, selected based on pre-determined set of rules with regard to factors such as age, gender and impairment.

The value of the index is determined based on observed mortality. The party exposed to the longevity risk pays a spread and receives the mortality contingent payment, akin to the death benefit.

The party exposed to the mortality risk receives the spread, akin to annuity/premium payments, and makes the contingent payment upon observed mortality in the pool of reference lives or life.

### LONGEVITY-LIKED NOTES

These can either reference a pool of pre-defined lives or life for multiple investors or be constructed to reflect the requirements of a specific investor. The notes can be offered in most major currencies as plain vanilla notes, either zero-coupon or with coupon and can be with or without capital protection. They can also offer customised payout features to suit the needs of investors.

Similar to a life settlement, as lives in the pool mature earlier than anticipated, the return on the note increases and reverse is true should the lives mature later than anticipated. With certain types of notes, the maturity proceeds can either be paid out to investors upon occurrence or upon reaching a pre-defined threshold.

### LONGEVITY-LINKED SWAPS

These can be structured based on a pool of actual underlying life settlements referencing individual lives ("policy-linked") or they can be based on a pool of reference lives or life based on the specific

**Advantages and disadvantages of the products**

| | Index | Notes | Swap |
|---|---|---|---|
| Advantages | ■ Greatest liquidity flexibility of all three synthetics instruments<br>■ Observable two-way markets | ■ Highly flexible to suit different risk appetites<br>■ Limited downside exposure | ■ Highly customisable pool of reference lives<br>■ Greater ability to leverage |
| Disdvantages | ■ Difficult to customise the underlying pool of lives<br>■ Full medical records not available for the referenced lives | ■ Limited upside for investors | ■ Limited liquidity when compared to an index |

needs of the investor ("life-linked"). As the policy-linked swap is underpinned by a portfolio of life settlement policies, some of the risks associated with holding pure life settlements are translated into the swap, such as carrier credit risk but many risks inherent in a life settlement transaction are removed.

Similar to a customised note, in a life-linked swap, an investor is able to better customise the longevity exposure by being able to choose different parameters to fit cash flow and portfolio requirement.

In a typical longevity swap transaction, the longevity risk holder pays an initial sum and fixed pre-agreed amounts representing the initial purchase price and subsequent premiums to the mortality risk holder in exchange for the floating amounts representing the death benefits.

Unlike the notes, the swap holder is able to modify or adjust the underlying characteristics of assets during the duration of the swap.

## INVESTMENT CONSIDERATIONS

For most investors, the best entry into this class is likely to be via an open-ended longevity fund which would enable access at investment levels of around $100,000 (€80,000). As a point of reference, in order to construct such a trade from scratch would require a minimum investment sum of around $10m.

When selecting a micro-longevity fund – whether physical, synthetic or mixed asset – investors need to consider that the fund is operating under liquidity constraints. This means it is reasonable for an investment fund to put in place redemption period and redemption costs in order to ensure equitability to shareholders who are not exiting.

Valuation methodology is also critical. The key question here is whether the fund uses a mark-to-market or a mark-to-model valuation and if the latter, is it one that is based on a deterministic, probabilistic or hybrid approach?

Other considerations include type of synthetic longevity exposure. Investors should understand the nature of synthetic longevity products that are in the fund and the fund's total exposure to synthetic products versus direct holding of life settlement policies and the amount of leveraging in each. Likewise there needs to be transparency over costs.

Perhaps most important of all, however, is manager experience. Is the fund management team known and are they able to substantiate a successful and long track record? This is a dynamic asset class, so proven ability to innovate is key.

## LOW VOLATILITY AND SECURE RETURNS

Although there are clearly many considerations to be born in mind, longevity is definitely an asset class that is coming into its own. Synthetic micro longevity instruments in particular are starting to prove their worth by helping investors, both retail and wholesale, meet their requirements for low volatility combined with secure returns.

Longevity fund investment is being seen as an attractive option in the light of the turmoil of 2008 and the failure of other, as yet more established alternative investment classes to deliver returns in line with investor expectations.

While the market is still small (estimated at $13bn for traded life policies) it is expected to grow rapidly in the next few years.

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