

Impact of bond yields on life annuity pricing



Boitumelo Ngoepe
Actuarial Specialist
Sanlam Corporate: Investments

Recent questions on the current volatility in annuity rates, have highlighted that there is little understanding of how life annuity rates are determined.

A life annuity is an insurance policy contract that offers the policyholder a pre-determined guaranteed income for the rest of their lives. Sanlam offers a range of life annuities, which mainly differ by how annual increases are determined (i.e., no increases, a pre-agreed fixed increase each year, increases linked to inflation or increases linked to the performance of an underlying portfolio or index).

The level of income an annuitant can receive from a life annuity depends on several factors:

- ⦿ The type of life annuity
- ⦿ Purchase amount
- ⦿ Annuitant's age, gender and income level
- ⦿ If a spouse or second life is included
- ⦿ If a guaranteed period is included
- ⦿ Fees and charges

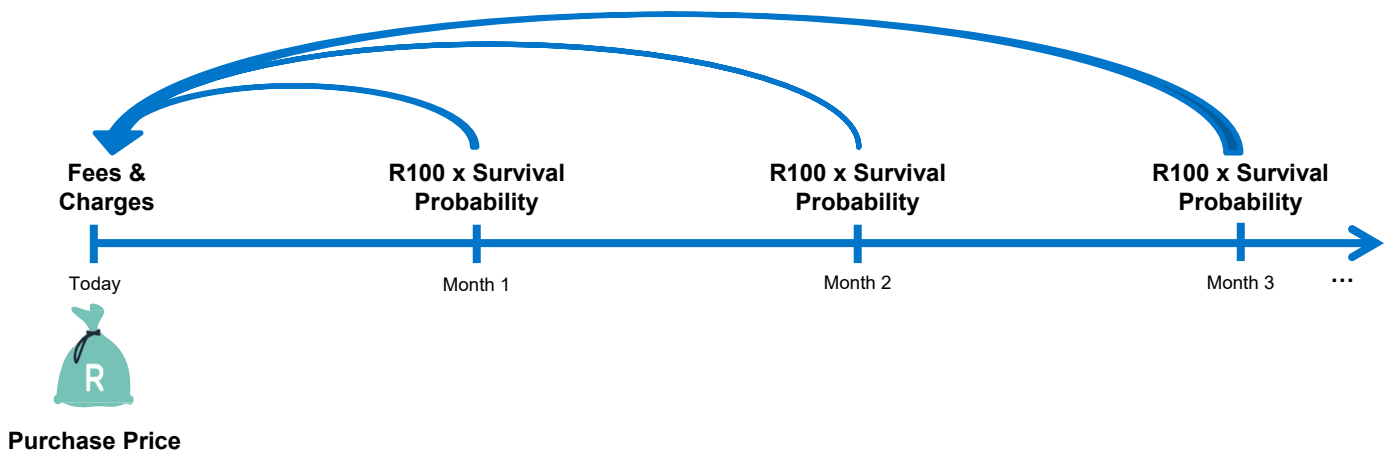
Another important input used in calculating the cost of an annuity is the discount rate, this is the rate used to discount expected future annuity payments. The 10-year South African government bond yield curve is a good proxy for the discount rate used by insurers. Daily changes in the yield curve, with all else kept constant, will result in changes in the price of annuities.

To better understand how yields affect annuity rates, let us consider an example:

An annuitant wants an annuity that provides an income of R100 each month for life, the insurer will first estimate the probability that a member remains alive each month to receive the income. The insurer then uses the corresponding points on the yield curve as an interest rate to discount the expected annuity payments. The sum of all the discounted expected annuity payments, allowing for all fees and charges, is then the purchase price.

Conversely, and what typically happens, an annuitant will have a sum of money (retirement savings) to buy an annuity, the insurer will then calculate the level of annuity which when discounted will equal the purchase amount.

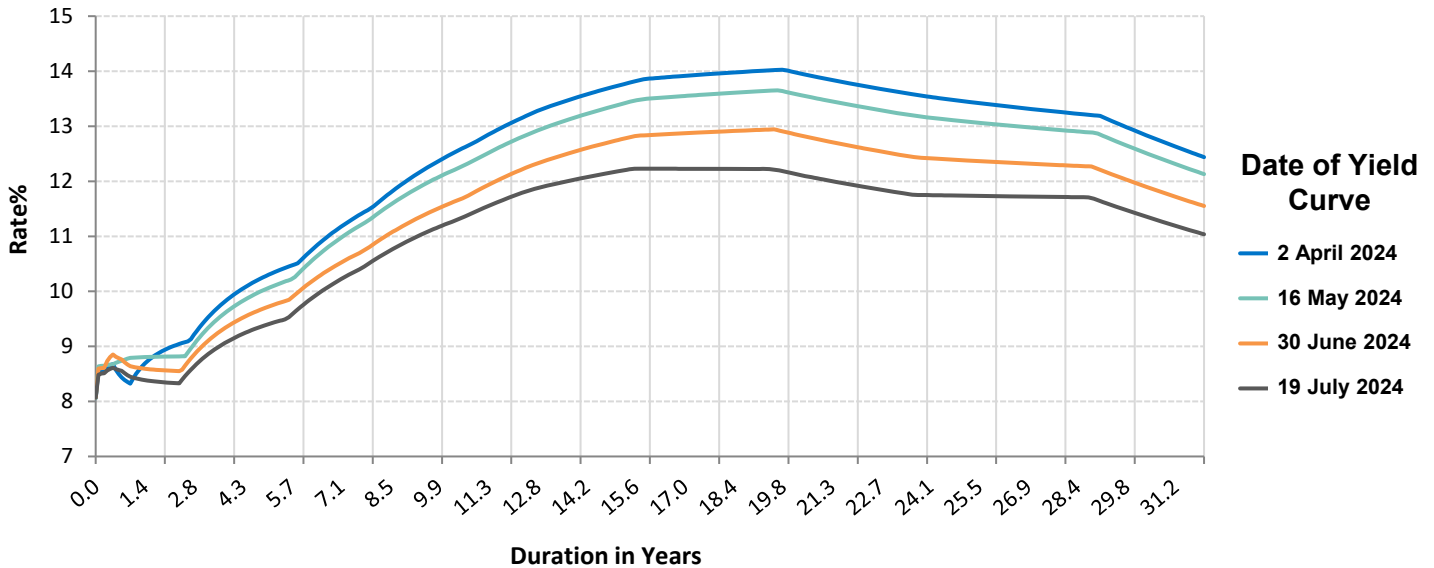
Expected annuity payments discounted using corresponding point on the yield curve





The 10-year South African government bond yield curve changes daily with the market, which makes the timing of a life annuity purchase an important consideration. At Sanlam Corporate we update the yield curve daily, this means the quotations done on different days will have different annuity rates due to the changes in the prevailing market yields (with considerations of the quotation validity period). The graph below shows changes in the yield curve at different dates.

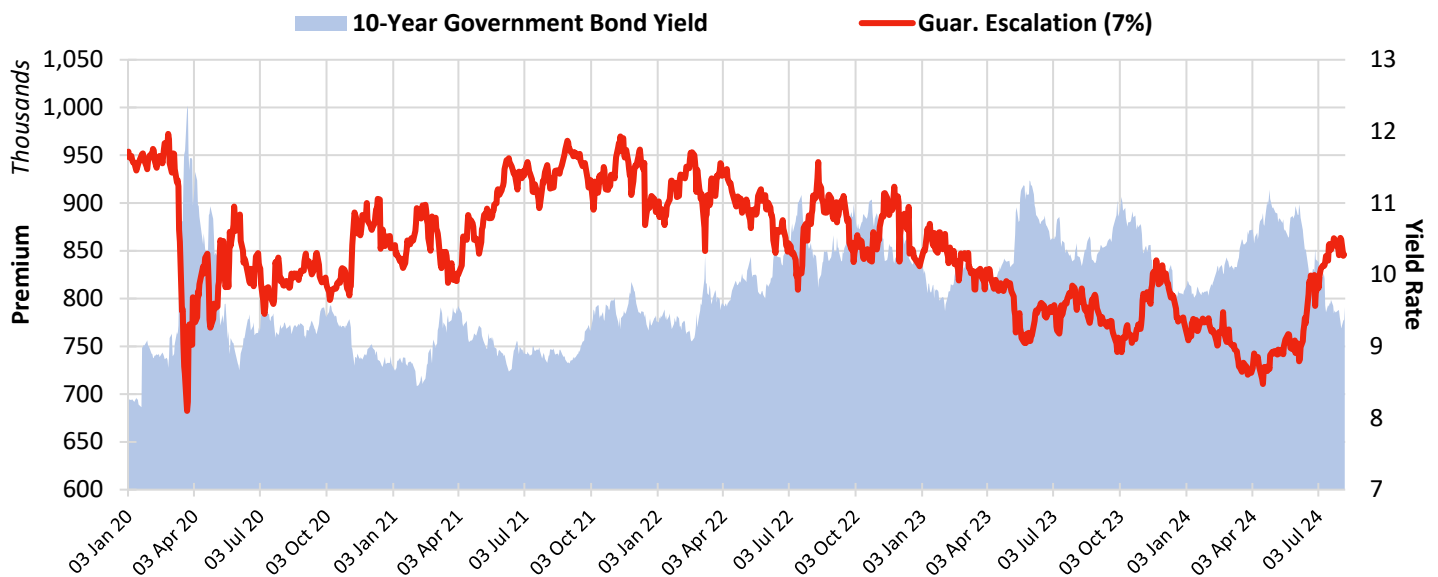
Yield Curves (Risk Free Nominal Rates)



Recent changes in yields

From April 2024, the 10-year Government Bond Yield has been on a steady decline. This means that the expected annuity payments will be discounted using a lower interest rate, resulting in a higher expected present value (or purchase price). The graph below shows how the purchase price of a 7% guaranteed life annuity with a R5000 starting price, for a married male aged 65 has changed since 2020:

Effect of nominal yields on the price of a guar. life annuity since Jan 2020



The decline in the 10-year Government Bond Yield has resulted in an increase in the premium required for a starting pension of R5000 per month. The inverse applies, for a fixed purchase price, the starting income for an annuitant would have dropped significantly. As a result, retiring individuals would have seen significant changes in their quotations for life annuities.



To summarise, factors that influence the purchase price of an annuity are:

- ⦿ The annuitant's personal information and options (age, gender, annuity type, guaranteed period, etc.)
- ⦿ The survival probability of the annuitant (mortality basis)
- ⦿ The prevailing level of market yields (discount rate basis)
- ⦿ The fees and charges (fee basis)

In summary, life annuity rates remain favourable for members looking to buy a guaranteed income for life, as members can lock-in the current high rates for, ensuring they retire with confidence!