somewhat different

Underwriting upside down

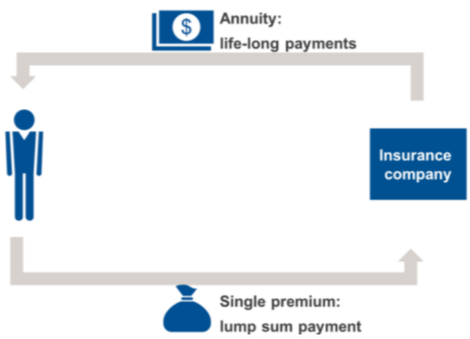
The ageing population and a move towards self-funded retirement gives rise to new opportunities for life insurers

Why annuities?

It has become common knowledge that life expectancy is rising and social security systems alone cannot guarantee security in old age. However, if asked, most people underestimate both their life expectancy and the amount of funds needed to provide an income for life. Therefore, to maintain a standard of living and to ensure you reduce the risk of running out of money, at least a portion of available funds at retirement should be invested in a retirement product. The insurance industry has the solution to meet these needs: annuities.

Standard annuities provide a guaranteed series of life-long payments in exchange for an upfront amount. There are a ton of variations on this concept, with the general intent to provide a comfortable level of income for life.

Figure 1: The concept of annuities



However, when insurers offer standard annuities, rates to the customer are only differentiated by age and gender. As such, insurers will tend to expect only healthier lives will purchase an annuity (not likely to purchase an annuity if you don't have long to live, are you?), reducing the income insurers are prepared to guarantee.

What appears to make sense can also be perceived by some as being unfair. How would these products work for people with health issues? If purchasing an annuity, someone with a health issue should not be offered the same annuity amount as someone who is a super healthy life – just as someone who has a health issue should not pay the same insurance premium for a life insurance policy, as a super-healthy life. Furthermore, as higher socio-economic classes have a higher life expectancy, it could also be argued that such products could be subsidised by the lower socio-economic classes, assuming both groups were offered the same price.

The solution

Flip underwriting as we know it to create underwritten annuities (or known in the UK as enhanced annuities). This variation on a standard annuity takes into account the health issues of a customer and provides an annuity reflecting their individual life expectancy. An underwritten annuity offers higher regular income to applicants who are not in good health, who in all likelihood have a lower average life expectancy. It's underwriting, in reverse. Everything you know and do as an underwriter, when it comes to the world of underwritten annuities, you effectively do the opposite. History of cancer that is still rateable for life insurance? Offer them a higher annuity payment. Ditto many other rateable conditions.

In order to be fair, each and every medical or lifestyle component which influences life expectancy is taken into account. On the one hand, it is appreciated that an annuitant who suffers from cancer receives a higher lifelong annuity while on the other hand an annuitant who smokes may also be "rewarded", as this also reduces life expectancy.

In the UK, enhanced annuities have proved to be a huge success. In recent years, some annuity regulations were changed and the tax incentives for buying an annuity were withdrawn. That said, there is still a sizable market for enhanced annuities as people are strongly motivated to ensure that they do not outlive their retirement savings.

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Today, automated underwriting systems providing guaranteed quotes at point of sale are the market standard in the UK. The systems gather information via a questionnaire commonly agreed upon by the providers of enhanced annuities. This questionnaire asks general health questions and is set out in terms that can easily be understood and answered by the customer. This is then evaluated and an annuity offer is made on the spot.

Assessment of risk

As with life insurance, when it comes to underwritten annuities, the assessment of life expectancy is key. There are many factors influencing life expectancy, the most obvious being diseases. What also comes into play are educational and behavioural issues. With a higher education, income is generally higher, access to medical treatment is better, there is a better understanding of disease management (e.g. diet in diabetes) and thus life expectancy is above average.

What makes the calculation of underwritten annuities special is the combination of medical and actuarial expertise. Not only actuarial statistics of life expectancy but also medical expertise in assessing specific illnesses and their development over time are crucial.

While in the early days of underwritten annuities in the UK fixed multipliers were applied to a standard annuity table, today the approach is much more sophisticated. Survival curves are important and one example for modelling is the use of probability functions. Based on medical research, survival probabilities at a certain point in time are derived and survival curves are developed through actuarial methods.

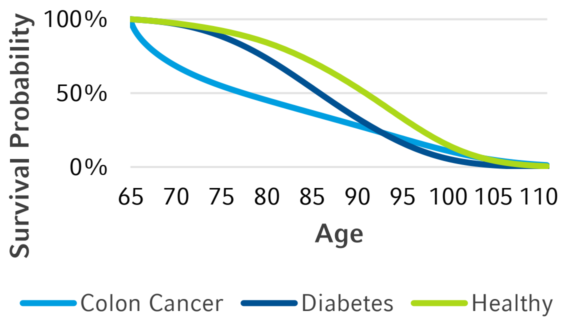
Once the policy is issued, the insurer would have the right to check the disclosure as to discourage over-disclosure. Typically, only a sample of policies are reviewed, in most cases no findings are found, and the policy can be re-confirmed.

If there are issues with the disclosure, the insurer might vary the rate (up or down) or potentially cancel the policy.

Illustration

For example, look at the two diseases cancer and diabetes. Cancer is a disease most deadly in the early years of diagnosis whereas diabetes is a progressive disease with death occurring later on. When calculating an annuity value one has to take into account the special shape of the survival curves of these diseases.

Figure 2: Survival curves for different health conditions



Out of a wide range of diseases covered, illustrated below are two typical examples demonstrating the potential impact on the annuity value. All examples are simplified cases based on a healthy annual annuity of AUD 1,000.

	Healthy	Standard	Diabetes[1)]	Colon cancer[2)]
Annuity in AUD	1,000	1,020	1,130	1,550
Increase relative to healthy	0%	2%	13%	55%

1) Type 2 (tablets)
2) Diagnosis 1 year ago, tumour invaded adjacent lymph nodes

Final thoughts

An underwritten annuity is tailored to individual life expectancy and offers fair value for money. When retiring, no one knows how long he will live and the risk of outliving the retirement savings can be mitigated for a fair price by an underwritten annuity.

We do not sell life insurance without underwriting, as that would increase the cost to healthy policyholders. Equally, sick annuitants should not bear the high costs of the super-healthy, and we must underwrite annuities also … underwriting upside down, are you ready?

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Morten works in Hannover Re's longevity team as an actuarial specialist in longevity solutions. He has a background in Mathematics and Economics, holds a Ph.D. in applied mathematics and is a qualified actuary.

Morten joined Hannover Re in 2015 and in his current role in the longevity team he is dedicated to product development, marketing, modelling and actuarial aspects of longevity solutions with worldwide scope with a focus on Australia and New Zealand in particular.

Morten works closely with our longevity experts in Australia in seeking to develop longevity solutions for the Australian and New Zealand markets.

David was recently made Head of Retail & Structured Solutions at Hannover Re. He joined Hannover Re in 2017 working across Australia and New Zealand and has supported clients with individual risk products, financial solutions and longevity reinsurance.

Prior to his role at Hannover Re, David has been involved in a wide range of roles including consulting at EY and actuarial pricing, valuation and financial advice remediation at CommInsure and CBA.