

21 November 2008

VOLUME 518

Should it be life or living?

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Last week we looked at what can be done in an Investment Linked Life Annuity (ILLA) to increase the possibility of capital stability and to decrease volatility risk. Perhaps another question one should ask is whether an ILLA is the appropriate place to be at all?

Traditionally the provision of post-retirement income was the sole province of the life insurer or pension fund. They sold what is called a life annuity. This provided the retiree, and possibly their dependants, with a stable income until death.

By doing so the institution took on all the investment and longevity risk, hopefully leaving the investor with peace of mind. Recently the ILLA came into vogue and suddenly everyone thought it was the ultimate solution to their retirement problems. The dilemma may be that there is no “one solution.”

There are several purported reasons people choose ILLAs. The desire to leave capital to dependants is a possible reason, however research in the UK suggests that less than 40% of individuals are motivated by the bequest motive or concerned about early death¹.

The flexibility of the ILLA is also often touted as a reason for its selection. This includes the flexibility to vary the income rate, the asset allocation; and some individuals even take on an active role in managing their assets. The same UK survey suggests that almost 75% of annuitants selecting the ILLA do so for reasons of flexibility¹.

Another possible reason is the perceived poor value of a life annuity. Annuity rates differ, but generally the rates are significantly lower at the outset of retirement than what could conceivably be drawn from an ILLA. Currently life annuity rates vary between 5% and 10%, depending on the annuity, while an ILLA is only limited by a 17.5% maximum drawdown percentage.

Lastly, the prospect of obtaining a higher long term return on the investments in an ILLA is also attractive. The possibility of achieving wealth by investing in equities has been romanticised (less so of late), which contributes to people who also “want to have a part of it.”

Aspects of a life annuity

The reason that a life annuity is often punted comes down to mortality pooling. This means you have a lot of different investors paying money into a “pool” which is then invested and used to provide an income. By doing so the investors receive two distinct benefits.

Perfect timing

A male aged 60 has a life expectancy of approximately 20 years, yet the probability that he lives to exactly 80 is very low. However with a 1000 men aged 60 we can calculate the average expected lifetime with a lot more accuracy and expect the average to conform much closer to this.

The benefit for the retiree in a living annuity is that because the average time of death is a lot more certain for a group than for an individual, it is possible to completely deplete the invested capital by providing income. This is not possible for an individual in an ILLA, both because withdrawal is limited to 17.5% and because the future lifetime is uncertain.

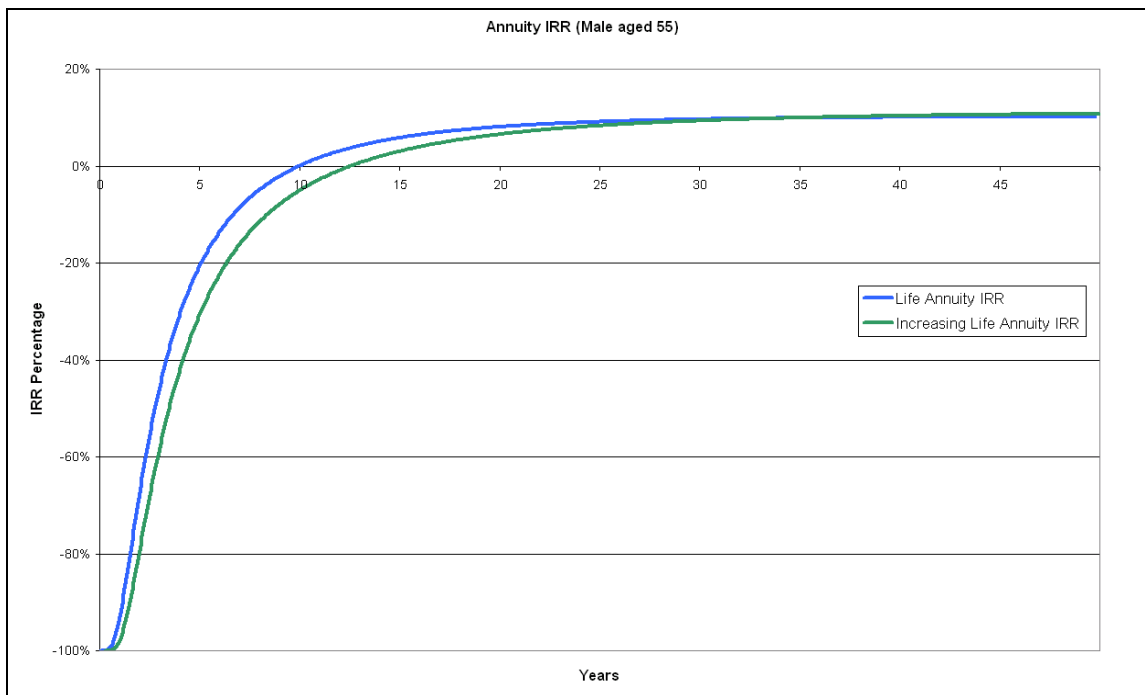
This implies that a life annuity with an investment return similar to that of an ILLA will provide the investor with a greater total income over his retirement, because the capital can be drawn down completely.

Mortality Profits

Mortality profit is another draw card for the life annuity. In a life annuity where there is a “pool” of money from where income is paid and the prospect of uncertain life expectations mortality profits arise. This is because investors who die earlier, subsidise those who live longer. Thus the longer an investor remains in a life annuity, the greater his returns will be. So in addition to the investment return produced by the portfolio, a retiree generates excess return from these mortality profits.

The downside of this is that if a retiree does not live to his expected age the inverse occurs. The return on his investment is reduced. This implies that the longer an investor lives, the greater his return on capital will be.

To quantify this we calculated the internal rate of return (IRR), based on the current rates, for a male aged 55. This was done for both a guaranteed life annuity with constant payments and an increasing life annuity, both up to age 105. The lines below show the IRR were the investor to die a certain number of years after the commencement of the annuity.



What one can see is that if the annuitant does not live at least ten years after initiation, the IRR of his life annuity is negative. This differs by age and other factors. It could be more than 10 years (as is the case with female policyholders) or less (if the retiree is older or unhealthy).

Another important aspect is the flattening of the IRR curve. In the initial stages of the annuity the rate of increase of the final IRR is high, while later on it flattens to a maximum or terminal IRR. The table below shows both the initial yields and the terminal IRR for an annuitant, assuming they live to the age of 105. The terminal IRR is the actual IRR experience by an annuitant living to the age of 105.

Age	Guaranteed Annuity		Increasing Annuity	
	Initial Yield	Terminal IRR	Initial Yield	Terminal IRR
55	9.84%	10.22%	5.91%	10.77%
60	10.55%	10.96%	6.71%	11.64%
65	11.65%	12.16%	7.85%	12.83%

What this means is that if you are a 60 year old male with R1'000'000 at retirement and you place this into a guaranteed annuity you have a monthly income of R8'791 for the rest of your life. Alternatively you could purchase an increasing annuity with an initial income of R5'591 which increases at 5% per annum. Should the investor live to the age of 105 the investment would have returned an average IRR of 11.64%

A more realistic situation

The above terminal IRR yields are all calculated on the assumption that the retiree will live to 105. However the probability of a male aged 55 living to 105 is about 0.0025%. In general men can expect to live up to the age of 80 and women between 3 – 5 years more. So if you take that into account, the average male can expect the following IRR on their life annuity.

Age	Guaranteed Annuity		Increasing Annuity	
	Initial Yield	Expected Yield	Initial Yield	Expected Yield
55*	9.84%	9.08%	5.91%	8.31%
60*	10.55%	9.12%	6.71%	8.12%
65*	11.65%	9.52%	7.85%	8.33%

*Calculated using life tables and total life expectancy

It is clear that an investment in a life annuity does not provide good returns relative to an investment in more risky asset classes – yet in retirement planning, total return is not the only consideration and may not even be the most important one. The issue remains, “what does an investor in an ILLA have to do to get a comparable result.”

ILLA considerations

An ILLA retiree cannot do their planning on the assumption of an average life span as there is a 50% probability that the retiree will outlive the average. ILLA investors need to build in margins of safety. To do this they either need higher returns on their assets or they must withdraw less income.

For most investors withdrawing less is not an option, therefore a closer look at what level of returns are necessary, to produce satisfactory margins of safety, is required.

In this calculation we examine males aged 55, 60 and 65 who wants to replicate the income stream of a 5% annually increasing life annuity. To do so an investor needs to estimate a time of death and then calculate the capital required at that stage which can provide the needed income, given the 17.5% income constraint. This, along with the income received, is then used to calculate the IRR.

The table below shows the returns that needs to be generated (Nett of all fees) for the above goal to be achieved. From this can be deduced that the longer the life expectancy and the higher the initial age of annuitisation both require that the ILLA generate higher returns to produce satisfactory margins of safety.

"Death" Age	Age at annuitisation		
	55	60	65
105	10.92%	11.79%	13.05%
100	10.81%	11.66%	12.91%
95	10.66%	11.47%	12.69%
90	10.42%	11.18%	12.32%

In this scenario a male aged 55 invested in an ILLA needs to generate a return of 10.92% p.a. or more to be safe.

Costs

Important to note is that there may well be excess costs associated with an ILLA. The Reduction in Yield (RIY) on a life annuity is around 0.6% per annum. With an ILLA the RIY can be anything up to 2.5% or more². This can make a significant difference over the long term and may force an investor into more aggressive assets thereby introducing the accompanying volatility and capital risks.

Conclusion

The question of whether to purchase a life annuity or an ILLA is an important one to be addressed in retirement planning. An ILLA is more suited to someone who may be younger, or who wishes to take an active role in managing his assets. A life annuity on the other hand will appeal more to an older investor or one who has a more cautious approach to investing.

Various strategies exist for combining a life annuity and an ILLA. An interesting strategy is what some call a firewall. This is where a life annuity provides a retiree with the absolute minimum income he can survive on. The remainder of the capital is then invested in an ILLA. Alternatively the investor can start off with an ILLA and then move to a life annuity later on. The strategies will depend on the needs of the client and must be carefully considered. By combining these two products the investor could almost have the best of both worlds – the safe and secure income of a life annuity with the flexibility, secure growth and bequest option of an ILLA.

Note

No attention has been given to the problem of volatility in the asset returns on an ILLA. This introduces complications that were discussed last week. Selecting a portfolio that can produce the required returns with a low probability of failure could be a challenge.

1. Gardner & Wadsworth (2004) – Who Would Buy An Annuity? A Technical Investigation, Watson Wyatt What If? Technical Report, March
2. Goemans & Ncube (2008) - Optimal Annuity Strategies After Retirement, Actuarial Convention Paper, October