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QWeMA GROUP INC

# Retirement Income: Analyzed

Retirement Income Analytics Newsletter from The QWeMA Group

QUESTION:

*I strongly believe that my client should Pensionize™ a fraction of their nest egg, but I am concerned that interest rates are abnormally low these days, and that as pricing rates increase the payouts on life annuities will improve. I know what life annuities are paying now, but how much more will my 65 year-old client get if rates move-up by 1% to 2% over the next five years?*

This is a great question. How would you answer it?

This newsletter will show you how to use the **Immediate Pension Annuity Factor (IPAF) function in QVEL** to demonstrate the interest rate sensitivity of life annuity costs to clients.

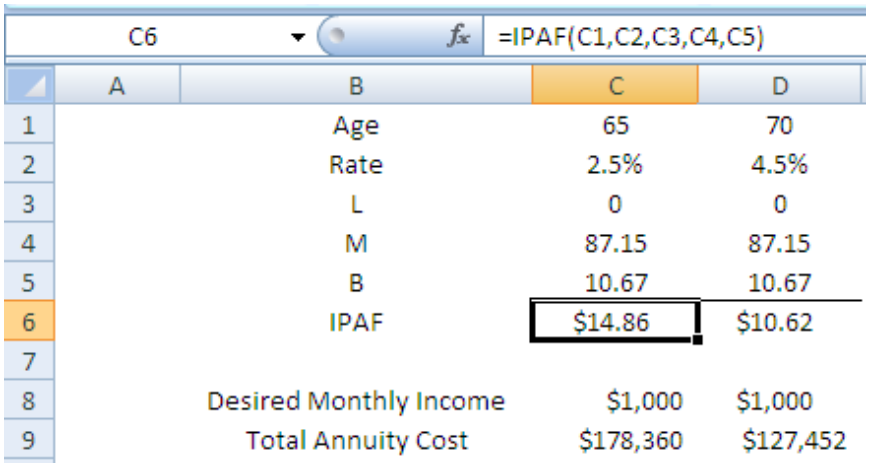
Taking a closer look:

In this example, let us assume that you have a new client named Barb. Barb just retired at the age of 65. She has no dependants nor does she have a spouse. After you ask some basic questions pertaining to her financial position, you learn that she has been self employed throughout her career and thus, does not hold a defined benefit plan aside from basic social security. Instead, she is planning on sustaining her life-style during retirement via a systematic withdrawal plan; which encompasses a mixture of stocks and bonds with periodic redemptions depending on lifestyle. At the same time she is worried that she may out live her nest-egg.

Barb feels as though life annuities are more in line with her goals and is seeking a life annuity that will pay her $1000 on a monthly basis. She is wondering whether she should use a portion of her nest egg to purchase a life annuity today -- at these low rates – or whether to wait five years and rely on her systematic withdrawal plan in the meantime.

These questions are very prevalent among potential retirees and the use of the aforementioned **IPAF function in QVEL** can allow an advisor to quickly and easily provide guidance to their client. This function scales an estimate for the fair value of what an individual should pay today, to receive $1 per year for the rest of their life. If someone were to multiply IPAF and desired annual income, the resulting product would provide an estimate for the cost of the desired life annuity.

With this in mind, below is a screenshot of the answer to Barb's question via an IPAF function call in excel.



C6 | fx | =IPAF(C1,C2,C3,C4,C5)

| | A | B | C | D |
|---|---|---|---|---|
| 1 | | Age | 65 | 70 |
| 2 | | Rate | 2.5% | 4.5% |
| 3 | | L | 0 | 0 |
| 4 | | M | 87.15 | 87.15 |
| 5 | | B | 10.67 | 10.67 |
| 6 | | IPAF | $14.86 | $10.62 |
| 7 | | | | |
| 8 | | Desired Monthly Income | $1,000 | $1,000 |
| 9 | | Total Annuity Cost | $178,360 | $127,452 |

The results presented above demonstrate the estimate for a fair price that Barb would have to pay for an immediate life annuity that would pay her $1000 monthly for the remainder of her life. The valuation rate used was calibrated to an average CANNEX[1] life annuity quote taken on February 25th, 2011. The appropriate L, M and B parameters, which refer to the Gompertz-Makeham law of mortality that the function uses to calculate survival probabilities, were input and Solver was used to minimize the squared error between the average of the CANNEX quotes and the product of desired income and the IPAF function by changing the valuation rate. Interested readers are referred to the October 2010 newsletter for further details pertaining to the Gompertz-Makeham law of mortality. The screen shot presented above clearly demonstrates that as interest rates rise and as a client ages, the fair value of the life annuity declines. The more intriguing question is: by roughly how much will a change in valuation rate change the fair value of the life annuity?

In order to provide Barb more concrete advice, an analysis of interest rates, the key driver of this function, must be conducted. Today, we know that interest rates are very low on a relative basis and given the current economic environment, yields will eventually rise. The results presented in 'Table 1-QVEL Results' demonstrate an estimate of the dollar cost saving for Barb waiting five years to purchase an immediate life annuity at the age of 70 and valuation rates rise by, for example, 1% to 2% from the current valuation rate estimate of 2.5%. Keep in mind that the results presented in this newsletter assume a flat yield curve that will only see a parallel shift going forward from the purchase date. An advisor with their own expectations of a parallel shift in the yield curve can easily change these values in QVEL and produce results in line with their expectations.

| Table 1-QVEL Results | | | |
|---|---|---|---|
| Desired Monthly Income | $1,000 | $1,000 | $1,000 |
| Rate @ age 70 | 3.5% | 4.0% | 4.5% |
| Total Annuity Cost @ 65 | $178,360 | $178,360 | $178,360 |
| Total Annuity Cost @ 70 | $138,427 | $132,757 | $127,452 |
| Percentage Change in Price | -22% | -26% | -29% |

As in the screenshot, it is obvious that as valuation rates increase Barb should have to pay less for her $1000 of monthly income. However, should Barb choose to wait the five years, she would have to fund her consumption through her systematic withdrawal plan. Relying predominately on this stream of income can be dangerous due to sequence of returns risk. Should the sequence of returns not go in her favor during the five years she is waiting, she may not be able to purchase the 'cheaper' life annuity in five years time.

Barb must also be cognizant of the sensitivity of life annuity costs as she ages. Holding age constant, the sensitivity to a change in valuation rate is larger at lower ages; which is attributable to the fact that survival probabilities decrease as age increase. As a result, depending on Barb's level of risk aversion, she may want to wait to purchase the life annuity. Doing so would ensure that her annuity would be less sensitive to changes in valuation rates; which would allow her to see returns on her life annuity investment faster. That being said, as was mentioned in the preceding paragraph, waiting the five years would force her to take on sequence of returns risk.

It is clear that valuation rates and ages can cause the fair value of a life annuity to change drastically. The decision to purchase a life annuity is thus, dependent on risk aversion, age, and the expectations of valuation rates going forward. Ultimately, these decisions rest in the hands of the client. That being said, advisors can use QVEL to think and work through IPAF values with their clients to get clear insights into the right strategies moving forward.

*-- This month's newsletter was authored by Simon Dabrowski, Research Associate at The QWeMA Group.*

[1] Annuity Quotes, CANNEX,http://www.cannex.com/canada/english/,(accessed, February 25, 2011 at 09:12:31 ET).