The Value of Annuities

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Ladies and Gentlemen; members of the Accademia Nazionale dei Lincei. It is a pleasure to join you today at this meeting of the Academy, one of the oldest citadels of science and learning in the modern world. I am delighted to have received your invitation to participate in this event and I am deeply honored to accept the honor that you have graciously awarded Elsa Fornero and myself for our research on risk and insurance.

In my remarks, I would like to share with you a few brief thoughts about why I think my research may be of interest in the European context.[1] On the recent death of the British Queen Mother at age 101, I remember thinking that many of us now must recognize the strong possibility that we could live to be rather old indeed. We have heard a great deal about global aging and the many impacts that this phenomenon has on the economy and on society. One of the most critical consequences of societal aging, however, is that it is becoming increasingly important to figure out how to maintain a decent standard of living over a 20, 30, 40, or perhaps even 50-year long retirement period. It is for this reason that finding ways to avoid running out of money during old age becomes an essential task, one which I have focused on in my research over the last 25 years. The basic question for those working in this field is: how can financial markets help manage longevity risk, in view of ever-longer-lived populations?

It is in this context that insurers have developed life annuity contracts. These are financial products which provide an older person the chance to protect himself against the risk of outliving his assets. This is accomplished by pooling, by which I mean people turn over a sum of money to a financial service institution which then spreads longevity risk over a large number of people, to enable it to pay survivors a lifelong stream of guaranteed income. This sort of a lifelong income

[1] These comments draw on my joint research with several authors listed in the Bibliography.

benefit is particularly valuable when substantial numbers of people outlive their life expectancies. Thus a 65-year old US male must anticipate a life expectancy of age 81, but if he were to spend down his assets just planning on running out of funds at 81, the chances are quite good that he will still be alive and wish he had consumed less! Indeed, almost one-fifth of men and almost one-third of women will live to age 90 or beyond. And protecting against living "too long" is precisely what annuity products are intended to do.

Annuities are certainly familiar products in Europe, since as early as the 1300s, payout contracts have been designed to payout over the lifespan. Yet in the developed world, annuities today are focused on *accumulating* funds, rather than *decumulating* them. For example, in the US, annuities are mainly a tax-driven investment device. Yet international interest in annuity markets has begun to grow in recent years. To some extent this has resulted from social security system failures, as in Latin America, where more than a dozen countries have moved from insolvent defined benefit pensions into new funded defined contribution pensions. Chile, for example, has had over 20 years of experience with its national plan, and it is beginning to devote increasing attention to managing the "payout" phase of their retirement system. In Europe, gradual movement toward pension reform will also focus attention on annuity payouts.

Valuing Annuities

The financial value of an annuity can be expressed in terms of what economists call its "Money's Worth". To determine what this is, we compare the annuity premium with the present value of the lifelong benefits promised to the purchaser. For instance, an immediate single-life annuity that costs €100,000 would pay a 65-year old man an annual benefit of approximately €6,800 for life. In this case, the Money's Worth is the ratio of the expected present value of the annuity's annual benefit stream to its purchase price.

In practice, constructing MW measures is not always simple, since obtaining mortality data, pricing information, and payout information is often difficult. Design diversity also makes it awkward to compare across different types of products. For example, a buyer might pay for an annuity all at once, or in several installments over many years. Benefit payments could be fixed for life, or they could rise at a predetermined rate or even rise with dividends or inflation. To make the analysis comparable, we have analyzed *single premium immediate annuities.*

We also take into account important cross-national differences in mortality in these computations. Using a benchmark of US age 65+ male population tables, our analysis indicates that Canada, Australia, and the US have very similar mortality patterns, but Japan has much lower male population mortality rates. Italy and Germany have substantially higher mortality patterns. We find some evidence of adverse selection in the mortality tables of annuitant buyers. This is explained by the fact that people who buy annuities have private information regarding their chances of living very long, a fact that is revealed in much longer lifespans. Our analysis of over 60 countries finds that mortality rates for women are 35 percent lower than the benchmark US male population rates. We also show that Italy and Germany both have higher annuitant mortality than US tables, but Switzerland, Australia, Canada and Japan are below the US benchmark. Indeed mortality rates for Italian male annuitants for some reason appear substantially higher than international norms would predict. Of course, these results do not necessarily imply that annuity prices or liability estimates are incorrect in those countries, because actuaries use many different assumptions to price their products. Yet there is surely need for better data to calibrate these results further.

Turning to the Money's Worth estimates, my research indicates that for Australia, Canada, Switzerland, the UK, and the US, a typical member of the population could anticipate receiving at least 90% of his premium back, if he bought a single life annuity. The results also

imply that adverse selection, as well as loadings and administrative charges, are less than 10% of the purchase price. Results are even more consumer-favorable using the figures computed with annuitant mortality tables. In the US, for instance, the MW ratio with annuitant survival rates stands at around 93% for both men and women, versus figures of 81-85% using population tables. The difference between these two figures, 8-12%, indicates the extent of adverse selection; it measures how much longer annuity buyers live than people in the general population. The remaining load of 7% indicates relatively low charges and fees levied by US insurers; this number is half of what it was in the previous decade

A different question of substantial interest to sellers of this product is how much would risk-averse consumers be willing to pay for the additional peace of mind that would be provided by having longevity insurance. We measure the insurance value of annuities with an *equivalent wealth measure,* which specifies how much additional wealth a retiree would need, if he lacked access to annuities, in order to feel as secure as he does with an annuity. Using reasonable assumptions, we find that a retiree having no other regular income stream would be willing to give up half of his total wealth to be just as well off as with a real (inflation-protected) life annuity. A retiree who already had half his wealth annuitized (e.g. through Social Security or pension benefits) would still be willing to pay one-third of his wealth to be as well off as if he had a real annuity.

The Future of Annuity Markets

While the market for annuities has been small in the past, we believe there is substantial room for future market growth. One reason is that the extent of adverse selection is relatively low and administrative loadings on these products are also rather low. Another is that mortality rates are continuing to fall and actual longevity may be even higher than reported in official government statistics. Yet another consideration is that retirees will increasingly value products

that help protect against outliving their assets, in view of the long-term decline in public and private pension pensions seen in Europe and the Americas. Therefore we anticipate that well-managed annuity markets with reasonable charges will become increasingly attractive to purchasers. Competition between insurers will also contribute to cost containment in this market.

There are some who would advise the elderly not to purchase annuities: for example financial advisers may suggest that they can manage retirees' money more cost-effectively than insurers. Still others advise people to delay annuitizing, on the grounds that retirees want to continue benefiting from the upside potential of investment portfolios, or that investments are better able to track inflation than fixed annuities. And some elderly are reluctant to annuitize their assets since they seek to maintain a certain liquidity balance to cover medical shocks, or to give to their children. Yet many of these objections can be overcome with new product design. For example, some insurers have devised two-tier payout schemes, with one level of benefit paid out as long as the retiree is healthy, but a second, higher, benefit is triggered if the retiree becomes disabled (as certified by a medical expert). Inflation-linked annuities are also a real possibility now that the US and a few European countries offer inflation-indexed bonds.

Policymakers could also do more to enhance the functioning of annuity markets. One area is improving the integration of pension and insurance regulation. Some governments still require insurers to use out-of-date mortality tables and provide unrealistic minimum guarantees. Another issue is how to secure insurers' long-term liquidity and solvency; the lack of an effective regulatory environment can have a discouraging influence on workers and retirees thinking of buying an annuity for the long term. Another issue is tax and regulatory policy. In the US, most of the annuity market currently is oriented toward accumulation rather than decumulation products, since variable annuities are a tax-protected asset; however, as insurers hasten to point out, recent changes in income and estate taxes have reduced the relative appeal of

annuities versus mutual funds. In France, tax policy has discouraged employers from building up collateral assets backing company pension promises and encouraged retirees to take lump-sum withdrawals instead of periodic annuity payments. By contrast, Italy has required mandatory annuitization of half of workers' accumulated pension balances; Portugal mandates annuitizing two-thirds of the balance; the German Riester products stipulate that some annuitization must occur at age 85; and in the UK, annuitization occurs at age 75. Clearly the regulatory structure can do much to enhance the demand side of the market and reduce adverse selection.

Concluding Observations

To conclude, this body of research on annuities has several implications. First, the market for annuities is likely to become more robust in the future, as a result of greater longevity, cuts in pensions, and the development of new financial products. Second, thoughtful public policy can do much to strengthen annuity markets: by building high-quality datasets on mortality patterns, by streamlining tax policy to enhance the appeal of these products, by requiring more transparent reporting of administrative loads and fees, and by strengthening retiree awareness of longevity prospects. Governments can also contribute to the development of more liquid markets for long government indexed bonds to match liability patterns. Finally, as we have become painfully aware in the US, financial oversight groups may be needed to strengthen investment markets in general, and annuity markets in particular. Let me conclude by again expressing my appreciation for your attention, and with my favorite quote from Oscar Wilde: "It is better to have a permanent income than to be fascinating".

Thank you very much.

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