

Anti-selection and annuity pricing

David Robinson and Stephen Richards discuss Nobel Prize winners, secondhand cars, and fruit.

References

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IN 1970 GEORGE AKERLOF wrote a now-famous paper entitled 'The market for lemons: quality uncertainty and the market mechanism'. In this paper Akerlof established the fundamentals of asymmetrical information theory, ie where two transacting parties have different information. Akerlof illustrated this with the second-hand car market, and he later won a Nobel Prize for his efforts.

Information asymmetry arises in many markets. In Akerlof's secondhand car market there were good cars ('cherries') and dodgy cars ('lemons'). The seller of a secondhand car obviously has a much better idea of which kind of car he or she has, while the buyer has a much less clear idea. This is information asymmetry, where one party has more information than the other. If a buyer of secondhand cars wants to offer a standard price, then they are running a risk if there are other buyers in the market who conduct detailed checks as to whether a car is a lemon or a cherry and offer different prices accordingly. The buyer who does not check and offers a standard price based on a presumed mix of lemons and cherries risks getting only lemons. Akerlof showed that, in extreme cases, this state of affairs could lead to the collapse of a market.

The wonderful world of life insurance

The market for life insurance is also one of information asymmetry – the proposer usually knows much more about his state of health than the insurer does. To stop the market collapsing, and to protect their profitability, insurers redress the information imbalance by underwriting, the process of gathering important information about the risk being presented. The idea of underwriting for life insurance contracts is long established. Occasionally insurers have been tempted to dispense with underwriting because of its cost and the complications it causes for the new business process. Insurers who have attempted to reduce underwriting have usually been rewarded with a lot of red ink for their pains. Uncontrolled information asymmetry leads directly to anti-selection, a phenomenon-actuaries can never overlook if they want their insurance business to make money.

Back to annuities

But what does this have to do with annuities? There is no medical questionnaire for a standard annuity, for example. The information demanded by the insurer for a standard annuity is seldom more intrusive than asking for sex, date of birth, and purchase price.

In fact, there is now strong anti-selection acting in the open market for annuities. This arises from the proposers being sorted into two groups: those who qualify for an enhanced annuity for ill health or lifestyle reasons, and those who are in good health. Because of the rise of the enhanced annuity market – of which more later – today's proposers for standard annuities are now a much more

select group than those of a decade ago. There is information asymmetry, but it is not in the proposer's head so much as embedded in the basic operation of the open annuity market: the insurer does not know if the proposer has considered, or been considered for, an enhanced annuity or not. The standard annuity market thus contains more lemons (super-healthy people who were turned down for an enhanced annuity or who decided not to apply because they were too healthy) and fewer cherries (only those unhealthy people who did not consider an enhanced annuity).

Enhanced annuities

Ten years ago the UK enhanced annuity market was small and the impact of the anti-selection described above was therefore also small. This market has grown rapidly in recent years and has reached a large proportion of the overall market: from £180m in 1998 (Ainslie, 2000) to £700m or 23% of the open market for annuities in 2003 (Joannes, 2005). Ainslie suggested that 'as little as a 7.5% market share' could reduce the profitability of standard annuities.

There are now several specialist enhanced annuity providers. There are also numerous specialist retirement income and annuity advisers, for whom consideration of an enhanced annuity is now a standard part of their advice process. The enhanced annuity has gone from an obscure niche to being a major market in its own right and 'business as usual' for many market participants.

Financial impact

Data on the enhanced annuity market is sparse: the only data available is the survey from Watson Wyatt, but even this is not complete as not all offices in the enhanced market contribute to it. Enhanced annuities are specifically excluded from the CMIB's investigations, so there is no data available to measure the mortality that has been taken out of the standard market.

The only option available is to construct a sensible model and to parameterise it using the relative size of the enhanced market and by making some assumptions about the relative mortality rates in the enhanced and standard populations. This was the approach taken by Richards and Jones (2004), where they estimated that anti-selection might add around 3½–4½% to the cost of a standard annuity without anti-selection. As it happens, the profit margin for an annuity writer is also around 4% of premium, so failure to allow for anti-selection could cost you your entire profit margin.

The future

It is clear that there is considerable anti-selection in the open market, and that this is here to stay. The financial effect of this in the future is difficult to quantify but it could easily eliminate your company's profit on standard annuities if not recognised and adequately allowed for. □

David Robinson and Stephen Richards both work for Prudential