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The Financial Actuary and the European Consumer

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Summary

In this paper I have sought to examine the expanding role of the Actuary in the new financial markets, in particular with the opportunities that are presented by increased integration with Europe. I have coined the term "Financial Actuary" to define the diversification of actuarial interests away from predominantly insurance based disciplines. Additionally, this Paper examines the technology available to assist in marketing and administration.

Résumé

L'Actuaire Financier et le Consommateur Européen

Dans cet article, j'ai cherché à examiner le rôle croissant de l'Actuaire dans les nouveaux marchés financiers, en particulier en vue des opportunités présentées par l'intégration accrue avec l'Europe. J'ai inventé le terme "Actuaire Financier" pour définir la diversification des intérêts actuariels à l'écart des disciplines principalement basées sur les assurances. De plus, cet article examine la technologie disponible pour assister le marketing et l'administration.

THE CHANGING ROLE OF THE ACTUARY

As Hans Buhlmann referred to in the Editorial section of the ASTIN Bulletin of November 1987, a new type of actuary is emerging, a professional who is using his or her skills for investment and banking applications within and outside of the insurance industry. With characteristic originality, he adapted contemporary science fiction terminology to describe this current generation of professionals.

"At the moment, we are witnessing a new development, which I would call the emergence of the Actuary of the Third Kind. By this I mean a new group of mathematical experts who unfold their skills on the investment side of insurance or banking. Of course, actuaries have always contributed by applying their methods to investment activities - the Anglo-Saxons probably more than we Continentals - but if we ask ourselves how we typically tackle real life investment problems, we must confess that the scientific method boils, in most cases, down to straightforward compound interest calculations."

In this brief but highly interesting article, Professor Buhlmann continues by stressing that with the unbalanced and dependent nature of investment risks, which no mathematical law can automatically balance, the Actuary of the Third Kind must deal with new artificial tools especially created for this purpose, namely options, futures etc. He also calls for the actuarial profession to be an "interactive forum of all professionals applying quantitative methods to financial and insurance risks of any kind."

The "Financial Actuary" is a term I am using to denote another extension of the role that we, as Actuaries, should be playing in today's complex financial markets, particularly in recognising a more direct responsibility towards the consumer. M.G. Kendall, Professor of Statistics at the University of London, highlighted the statistician's diversity of roles at the Alfred Watson Memorial Lecture he delivered on 27th February 1956, which has relevance to today's increasingly sophisticated actuarial environment.

"The true place of the statistician in business lies, I think, between the extremes. He is not a hack whose duty is to devil for more enlightened minds; neither is he an adept of some mysterious cult which gives him keys to all the problems which confront the business man. To use a statistical concept, I would say that the statistician has no single place in business, but a distribution of places."

The name "actuary" is derived from the Latin "actuarius" denoting the clerk who recorded the proceedings of the senate, court or similar body, as defined in the 1970 edition of the Encyclopaedia Britannica. M.E. Ogborn F.I.A., noted in the Journal of the Institute of Actuaries in 1956 that this definition was supported by four examples from 1553, 1658, 1667 and 1717, and that the Court of Arches had an official called an Actuary (now the Registrar) whose duty was to attend the Court and to set down the judges' decrees. He also mentioned the summary of duties as set out in the deed of settlement of the Society for Equitable Assurances on Lives and Survivorships, founded in 1762, which showed what founder Edward Rowe Mores expected of his actuaries.

"The Actuary

1. shall give constant attendance at the House or Office of the Society on each day (Sundays only excepted) to receive proposals and execute other business.

2. shall, in a fair and clerk-like hand, method and manner, write and keep all the books of the Society

3. shall regularly enter every day, into a Journal to be kept for that purpose, all applications for membership and all such sums of money as shall be received or paid by or for the use of the Society and of every other occurrence which shall fall out and come first to his knowledge, relating to the affairs and business of the Society.

4. shall enter up the minutes of the proceedings and orders of the Court of Directors, and of the General Courts or Meetings of the Society."

The 1970-1971 Year Book of the Institute traces the extended scope that the British actuarial profession had so far achieved in the 20th century. Seeing the actuary as basically a type of applied statistician or demographer, the article notes that they were among the first to devise scientific methods of assembling, processing and analysing statistics and applying them to practical purposes.

"Their techniques for computing the "exposed to risk" pioneered a statistical method which has been adopted in many other fields. The preparation of long-term forecasts of the size of a population in association with compound interest is of importance in planning activities of various kinds, many of which depend on such projections. Actuaries invented, and use for practical purposes, select mortality rates (the 'age-specific and duration-specific mortality rates' of the latter-day demographers), and generation (or 'cohort') analysis of mortality and fertility has been practised by the profession for well over a generation. In World War I, the capacity of actuaries to undertake wider statistical responsibilities was demonstrated when Sir Alfred Watson, then Government Actuary, and W.P. (later Sir William) Elderton were statistical advisers to the Ministry of Shipping. In World War II, actuaries again played similar roles, not only in several Departments of State, but also in the fighting services, where they were prominent in the growing activity of Operational Research. Between the wars, it was increasingly realised that actuaries could help to solve the managerial problems of industry and commerce, especially in their financial and statistical aspects."

Actuarial science has developed from the concept that the experience of the past could be utilised to measure the chances of the future. Most actuaries, like Edward Rowe Mores, have involved themselves in the field of insurance, and have evolved into the scientists within the structure of the insurance industry. The actuary thus plays a major role in the development of new forms of insurance coverage and establishment of investment policy.

In the area of financial risks, R.S. Clarkson, at last year's AFIR Colloquium in Paris, defined two important and separate bodies of mathematical work, related namely to "choosing between investment profiles of different securities or of different portfolios of securities" and "the practical management of an insurance company using a utility concept, or something equivalent, to formalise the consistency requirements that underlie various subjective judgements." One can forsee that the development of new composite financial products, containing sophisticated amalgamations of security and risk elements, being marketed to the consumer within an increasingly European dimension.

Interesting questions were also raised in the article "Fuzzy Insurance" by Jean Lemaire in the ASTIN Bulletin in April 1990, which broaches unfamiliar territory to those concerned with calculating probabilities, but which seeks to describe problems whose limits are imprecise. Fuzzy set theory "provides a better framework than probability theory for modelling problems that have some inherent imprecision. The traditional approach to risk analysis, for instance, is based on the premise that probability theory provides the necessary and sufficient tools for dealing with the uncertainty and imprecision which underline the concept of risk in decision analysis." The theory has undoubted practical value which may eventually be of benefit to a hypothetical consumer who has, to borrow Lemaire's example, been refused a preferred rate for insurance because his cholesterol level is 201 rather than 200.

What steps should be taken to meet new obligations and circumstances? The "Report of the Committee to Review the Structure for Education and Training" (1984) for both the Institute and the Faculty (the Kennedy Report) has led to the revision of syllabuses and the structure of actuarial training. The view, as expressed in the recent Education Strategy Working Party Report, was that "the actuarial world is increasingly complex and changing rapidly. The newly qualified actuary will need, therefore, to be flexible and versatile. He or she will need to tailor his advice to the circumstances and have a good appreciation of when cautious margins are required and when not. The emphasis will need to be on actuarial principles and processes rather than detail. The newly qualified actuary should be seen as a professional in embryo rather than the finished product. Continuing professional education (CPE) should play a major role." I believe that actuarial principles and ethics have an important part to play in today's financial environment.

THE CONSUMER AND THE MARKET PLACE

I would also totally agree with the arguments on the need for the actuarial role to become more marketing, business and consumer orientated. These were admirably presented to the Institute on February 22nd 1988 by M. Iqbal, F.I.A., A.S.A., in his Paper "Marketing of Retail Financial Services".

"Actuaries have a long history of acting as the custodians of policy-holders' interest. They have always sought to give what is best for the individual they perceived to be the customer. It is only with the diminution of their power in the past decade that their sales/marketing colleagues have sought to put the intermediaries' and salesmen's interest first."

He points to the way that computers have helped to develop complex products, but the life cycle of these products has been getting shorter. "We need to start at the other end. We need to ascertain what it is that consumers and others who influence the buying decision really want. Only then should we design and develop products."

I believe that what the consumer expects today is a far more structured financial planning framework to personal investments, insurance and pensions. These products should be individually tailored to the needs of the individual consumer while guarding the interests of the financial institutions the actuaries are representing. While everyone is engaged on creating the optimal product in theory, adaptable to individual needs, in practice the consumer should be presented with a range of valid options, from which he or she would be free to choose.

Such products would take into account all details and salary and dependents, income, property, assets and liabilities, retirement age etc. As stated previously, these composite products would include security and risk elements, comprising investment, pension, life assurance, medical assurance etc.

Iqbal looked specifically at thirteen existing financial product life cycles from introduction through growth, maturity and up to the point he referred to as "petrification", with no further growth possible. Interestingly, periods of growth were noted for Unit-linked pensions, Unit-linked Protection/Savings, Unit Trusts and Segregated Funds.

Recent times have improved the bargaining position of the consumer in a number of ways. In the field of life assurance underwriting, for instance, advances in medical science have meant that new impairment assessments are constantly having to be made.

Robert Goldstone, M.D. of Metropolitan Life, New York, has stated:
"As individuals live longer, the age of the insurance market as a whole has expanded. As a result there has been a concomitant increase in the impaired risk market. While insurance has tended to group applicants into standard, substandard and non-acceptable risks, the basic reality is that any risk is a good risk if priced appropriately."

The consumer is however largely in ignorance of the potential products available to match his or her specific requirements. This problem is aggravated by the number of financial service outlets and direct/indirect sales approaches being made. There has always been competition between banking and insurance, and the legislation of the U.K. Government in 1986 liberating the financial services market has made this more intense. Insurance products are therefore available in the U.K. through, for instance, Natwest Insurance Services and Barclays Insurance Services. In Europe too, such organisations as Deutsche Bank are now marketing a whole range of attractive financial products which were formerly the preserve of the insurance industry.

Closer integration with Europe will lead naturally to greater interest by investors in our partner nations. As Ian Ferguson stated in a recent edition of "The Actuary", the democratisation of Eastern Europe and the imminence of the single market in Western Europe would naturally lead to the progressive erosion of barriers between markets and countries.

"At least one key consequence is that an individual company will be more international in its activities and its "home" country will be of less significance in evaluating it for long-term investment. We may well, therefore, be looking in the future at "Europe" as a single investment sector, possibly rather than "UK" and "Continental Europe", but certainly rather than "UK", "Germany", "Belgium" etc."

This market expansion, together with the calculation advantages that the single currency must bring, should be of particular benefit to British actuarial and financial expertise, with the added opportunities extended by freedom to practice professionally in other member countries. The EC currently with 320 million inhabitants offers a tremendous market opportunity for U.K. expertise in insurance and financial services. The U.K. financial experience is unique, and many products are of high potential interest consumers across Europe. This includes, for instance, the concept of protection for a borrower's family inherent in the obligation to take out life assurance to cover a mortgage loan. There should be no reason why French home buyers, with low interest rates available in that country, should not take advantage of mortgage opportunities from British Building Societies or Banks, and thus bringing new assureds into the British market. The Endowment Policy, a classic mixture of investment and risk, unit-link and profit-link should also be considered. Combinations may also be found incorporating financial products particular to other European countries.

That actuaries, after the necessary research, should take an increased role in development of the product elements within total financial planning structures, is to my mind the correct approach to attracting consumers in this broader market. I believe also that the independent intermediary is the best outlet for marketing these services. I have in recent articles likened the position of the independent insurance broker to that of an economic physician. It is the strength of independent intermediaries that they can carry out a financial diagnosis based on all available options, and be able to provide at the end not only premiums that are competitive but products that are fine tuned to a person's lifestyle and varying financial expectations.

The opportunity is there to offer a genuine third party testimonial, and to build a long term relationship with the client that is based on trust, similar to that one would desire with a general practitioner. The propagation of actuarial ethics, within Hans Buhlmann's "interactive forum" should be encouraged among the intermediaries in question.

TECHNOLOGY TO PROVIDE OPTIMUM SOLUTIONS

John C. Burville of Tillinghast recently said of computer technology developments: "Accounting Rules for insurance companies reflect hypothetical values for assets and liabilities. There are many reasons for this posture. However, with the prevalence of computerised information, techniques which were considered impractical ten years ago are now very possible. For instance, a company can now determine the market value of held quoted assets monthly, if not daily. Consequently, the market value of assets can be easily estimated."

Far reaching advances can now be predicted in computerisation for the insurance field. The intermediary, for instance, will be soon able to sit with the client in the client's home, using the technology of portable computers. In this relaxed environment, the needs of the client and family can be set out to produce a clear financial analysis. Through this a policy can be recommended that is accurately tailored for that individual. An impairment which has an effect on the premium could well be offset by another parameter, and all points within the individual formula worked out could be considered when determining the premium level.

The use of on-line communications to the insurance company's own computer may enable a policy to be actually produced on the spot, so long as the minimum declaration of the potential assured has been answered in accordance with the rules of the insurance company or bank in question, and in cases where no medical examination is required. The use of computerised life underwriting will further simplify and hasten the process. One can also forsee information being available to the consumer through Prestel, Minitel or comparable visual information network systems.

Actuaries have always utilised what technology was available to them in their derivation of calculations, with pen and paper, whether using a "fair and clerk-like hand" or not, giving away to the first adding machines followed by the advent of the punched card by Herman Hollerith in 1886. The term "artificial intelligence was coined in 1956 at a science workshop at Dartmouth College in 1956, denoting the development of computer programmes that perform tasks which, if done by a person, would require intelligence to perform. Arthur W. De Torre of Lincoln National Risk Management Inc., in writing upon expert systems in the Journal of Insurance Medicine, made it clear that computers would never truly substitute for the expert user.

"Human intelligence is characterised by the ability to explain conscious thought processes and to adjust thinking to new requirements in any area without bounds. Within this definition, machines can never show true intelligence but only artificial intelligence because they will never be truly "conscious" and although they can adjust their processing to new requirements, they will always be limited by their programming."

Computers, and the software to carry out specialist undertakings, not least in the insurance field, have nevertheless gone though significant advances. They should, however, continue to be regarded as highly useful tools, freeing the expert user from administrative tasks and as a significant assistance to complex product formulation. Additionally, a logical dedicated software programme geared to actuarial problems can act as an invaluable training aid.

The development of procedure orientated computer languages such as COBOL, FORTRAN and APL to follow symbolic language was a significant advance allowing for the production of greatly increased programming sophistication. This will shortly be superseded by a Common Computer Language, which will lead to enhanced opportunities for international standardisation and communication. It will help to build the models for the financial products of the future which, an undertaking in which, as I have stated, the Financial Actuary should play a significant role.

CONCLUSION

The object of this Paper has been to examine the opportunities for the actuarial discipline to be utilised in the creation of new integrated financial products for the new and broader market dimension offered by Europe. It has also been to highlight the fact that computer software technology developments offer the actuary effective tools over the full scope of professional activities.

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