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PREMIUM FIXATION IN INSURANCE BUSINESS – ROLE OF ACTUARIES

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Abstract
Actuaries are acknowledged experts in the analysis and modeling of situations involving financial risk and contingent events and concerned with both the asset and liability side of the balance sheet and able to provide realistic solutions to complex problems with a long term forward look and practical, innovative and numerate. An actuary applies analytical, statistical and mathematical skills to financial and business problems, especially those which involve uncertain future events, such as in life insurance, general insurance, risk management, health care financing, investment, corporate finance, banking, pensions and social security. This helps individuals and businesses to safeguard their future, confidently and at a fair price, in an ever-changing world.

Actuaries perform actuarial analysis of expenses, score techniques, score plans, and plans of insurance companies. These are experts who are experienced in examining and assessing insurance functions, stocks and underwriting techniques and offer complex assistance regarding actuarial matters to policy investigators and other complex staff. This paper provides a platform to understand the role of actuaries in insurance sector.

Key Words: Actuary, Financial Risk, General Insurance, Life Insurance, Risk Management etc.

1.1 Introduction

The opening of the insurance sector has also thrown a great challenge to the actuarial profession in India. The demand for actuarial skills and knowledge is growing up exponentially and the actuarial profession in India is gearing up its activities to meet this demand. The actuary is a specialist who combines an understanding of risks and mathematical technique to develop financial products to manage these risks (insurance policies), price these product (calculate insurance premium rates) and compute reserves to be held for liabilities of companies undertaking these financial risks.

An actuary may also be described as an applied mathematician responsible for the financial mathematics in insurance policies. In a broader sense, actuaries have been described as the professionals to call whenever money and probability interact. The actuary helps in designing insurance plans and then evaluates the financial risk of the company which it takes while selling an insurance policy. The responsibilities as an actuary include making sure that the company properly defines and carefully evaluates the insurance risk; charge a fair price to suit the risk; and has an efficient system to pay claims and expenses as and when they occur. Actuaries must understand the entire operation of insurance field because their evaluations often influence organization policies and practices. In fact, actuaries' calculations and judgment can commit organizations financially sound for future years. Because of many phases of organization's business such as general management, marketing, research, investments, accounting, underwriting, administration and long-range planning, the actuaries have great role to play in the insurance industry.

1.2 Appointed Actuary in India

An insurance company has to take the assistance of an actuary in conducting the business of insurance. The IRDA in consultation with the Insurance Advisory Committee has made regulations for appointment of actuary. Regulations 5 of the IRDA (Appointed Actuary) Regulations, 2000 provides that a life insurer shall not carry on business of insurance without an appointed actuary. The term 'appointed actuary' is a designation.

Eligibility: A person shall be eligible to be appointed as an appointed actuary for an insurer, if he or she shall be:

- Ordinarily resident in India;
- Fellow member of the actuarial society of India:
- An employee of the insurer or a consulting actuary in case of general insurance business;
- An employee of life insurer in case of life insurance business;
- A person who has not committed any breach of professional conduct;
- A person against whom no disciplinary action by the Actuarial Society of India or any disciplinary action pending with any other actuarial professional body;
- Not an appointed actuary of another insurer;
- A person who possesses a certificate of practice issued by the Actuarial society of India; and

- Not over the age of seventy years.

1.3 Powers of Appointed Actuary

The appointed actuary has been vested with substantial powers; the powers having enormous significance in insurance business are listed below:

1. An appointed actuary shall have access to all information or documents in possession, or under control of the insurer if such access is necessary for the proper and effective performance of functions and duties of the appointed actuary;
2. He may seek any information for the purpose of fulfilling his duties of an appointed actuary from any officer or employee of the insurer;
3. He is entitled to attend all meeting of the management including that of the directors of the insurer;
4. He is empowered to speak and discuss matter relating to the actuarial advice given to the directors, matters affecting solvency of the insurer, matters that may affect the ability of the insurer to meet the reasonable expectations of policyholders; and
5. He may attend any meeting of the shareholders or the policyholders of the insurer or any other meeting of members of the insurer at which the insurers' annual accounts or at which any matter in connection with the appointed actuary's duties.

1.4 Duties and Obligations of an Actuary

The duties and obligations of an actuary shall include;

1. Rendering actuarial advice to the management of the insurer, in particular in the areas of product design and pricing, insurance contract wording, investments and reinsurance;
2. Ensuring the solvency of the insurer at all times;
3. Complying with the provisions of Section 64V of the Act, 1938 in regard to certification of assets, liabilities that have been valued accordingly.
4. Complying with the provisions of Section 64VA of the Act, 1938 in regard to maintenance of required solvency margin in the manner required under that provision;
5. Drawing the attention of management of the insurer, to any matter on which he/she thinks that action is required to be taken by the insurer to avoid any contravention of the Act, 1938 or prejudice to the interests of the policyholders;
6. Complying with the Authority's directions from time to time:
7. Ensuring in general insurance business:
    a. That the rates are fair in respect of those contracts that are governed by the insurer's in-house tariff: and
    b. That the actuarial principles, in the determination of liabilities have been used in the calculation or reserves for incurred but not reported(IBNR)and other reserves where actuarial advice is sought by the Authority;
8. Informing the Authority in writing of opinion, within a reasonable, time, whether;
    a. The insurer has contravened the Insurance Act, 1938 or other related statutes;
    b. The contravention is of such a nature that may affect significantly the interests of the owners or beneficiaries of policies issued by the insurer;
    c. The directors of the insurer have failed to take such action as is reasonable necessary to enable him to exercise his or her duties and obligations; or An officer or employee of the insurer has engaged in conduct calculated to prevent him/her exercising his/her duties and obligations.

1.5 Functions

Actuaries are business professionals who use mathematics and statistics to evaluate risks. These risk professionals are required to pass a series of examinations. As these professional examinations are completed, actuaries can explore different jobs, such as working as a life insurance actuary.

Determine Premium Amounts: An actuarial role is to determine premium amounts. Actuaries calculate how much companies should charge for premiums. This helps companies remain competitive with other insurance companies and maintain company profits.

Risks Assessments: Actuaries are responsible for performing risk assessments. Risks assessments are based on different factors. Some of these factors include a person's age and health status. Life actuaries determine risk assessment based on costs, since they use numbers to calculate premiums and predict future insurance loss.

Consulting Services: Another role for actuaries is consulting services. Actuaries can testify in a court cases about the value of potential lifetime earning of a person. This court testimony is used when a person is killed in an accident.

Potential: The potential for actuaries to advance is based on job performance and the number of completed actuarial examinations. Some actuaries enter into roles as a chief risk officer or become independent actuarial consultants.

1.6 Role of Actuary in Life Insurance Company

The actuarial profession has its foundations in life insurance. Actuaries work in life insurance. Apart from their traditional roles, actuaries can be found in many other positions within life insurance, including dominant roles in executive management. Life Insurance Companies enter into long-term assurance contracts and they are faced with various uncertain factors like Mortality Rates, Yield on Investments, future levels of expenses and possibility of discontinuance of policies. Actuary calculates the premium or price for benefits offered under a Life Insurance Policy. He also works out at the end of every year, the solvency of the Insurance Company by means of an actuarial valuation. Funds are compared with present value of future liabilities.

In a Life Insurance Company which deals with uncertain future events, the day-to-day involvement of actuary is so high that most of the companies have full-time actuary and supporting actuarial staff. In India, Insurance Regulatory and Development Act stipulate that every Life Insurance and General Insurance Company must have an 'Appointed Actuary'. The role of Actuary is thus a Statutory Role and actuarial function is key function in operation of any insurance company. In fact role of Actuary is not confined to merely to calculation of premium and declaration of bonus but it extends to all facets of operations of a life insurance company such as Product Design, Pricing, Investments and Asset Liability Modeling. The role of Actuary in a life insurance company is like the role of a financial controller. Life insurance is a numbers game, and the actuarial role in life insurance is to crunch the numbers. There are many variables that factor into your life expectancy. So, the first job of the life insurance company is to collect information such as:

- Age
- Weight
- Habits (smoking, drinking, etc.)
- Current health status
- Ethnic group
- Parental information

With all of this information, the actuary can then begin the process of grouping people by life expectancy. This is done by feeding all the data into statistical models that help the actuary determine who to offer to and what to charge.

1.7 Role of Actuary in General Insurance Companies

General Insurance Companies offer a wide variety of contracts such as Marine, Fire and miscellaneous insurance. General Insurance business is based on past statistical data and simulation of claims experience using statistical techniques. Generally the contract is for one year but every contract leads to claims which may be reported even after the expiry of the contract. Actuary is involved in Product pricing as well as reserving for unexpired risk, outstanding claims and claims Incurred But Not Reported (IBNR). With advances in information technology, an Actuary is increasingly called upon to undertake technical work in General Insurance field using sophisticated techniques like claims modeling.

Health Insurance: Actuaries are playing a useful role in design of Health Insurance Products with the help of morbidity tables. Critical Illness cover is also offered as an extension of Life Insurance Policy.

Role of Actuary vis-s-vis Retirement Benefit Scheme: Employers provide benefits like Pensions, Gratuity and Encashment of leave. The benefits again depend on uncertain events like mortality, longevity, withdrawal rates and retirement age. It is also necessary to take a view about likely yield on investment, long-term rate of interest and long term rate of salary growth.

Accounting Standards require that liability under retirement benefit schemes must be actuarially calculated and disclosed in the Balance Sheet. An Actuary has to play a crucial role in financial evaluation of benefits and liabilities under Defined Benefit Retirement Schemes.

Role of Actuary in Social Security Scheme: Actuaries are also required to determine benefit structure and contributions in respect of Social Security Schemes being operated for organized industrial workers such as:

a. Employees' State Insurance Scheme providing sickness benefit to workers.
b. Employees Pension Scheme, 1995 which provides Defined Pensions to Industrial workers.
c. State Governments also utilize actuarial services for design and implementation of Group Insurance-cum savings Scheme.

d. Postal Life Insurance Scheme: This Scheme run by the Government of India also needs actuarial services for premium calculation and periodic actuarial valuations.
e. Life Insurance Corporation of India and private Life Offices: They are major users of actuarial services and actuaries are responsible for continued financial viability of these Institutions.

1.8 Skills Required for Actuaries

It normally takes six years to qualify as an actuary. An Actuary receives formal training in:

- Quantitative methods
- Finance (mathematical, statistical and general finance projections)
- Economics
- Probability and risk
- Sensitivity analysis
- Risk identification and assessment
- Understanding of complex financial exposures

An Actuary has the following strengths:

- Problem solving skills
- Advanced mathematical and statistical skills
- Logical and clear thinking
- Attention to detail

1.9 Typical Work Activities

Actuaries apply financial and statistical theories to assess the likelihood of a particular event occurring and the possible financial costs. Specific tasks vary but work may include:

- Analyzing statistical data in order to calculate, for example, accident rates for particular groups of people;
- Using mathematical modeling techniques and statistical concepts to determine probability and assess risks, such as analyzing pension scheme liabilities, to price commercial insurance;
- Monitoring risk within trading positions in investment banking to ensure excessive risks are not taken during the fast pace of trading;
- Presenting reports, explaining their implications to managers and directors, and advising on risk limitation;
- Advising on issues such as the selection of investment managers or the administration of pensions and benefits;
- Working with IT professionals to develop systems to ensure compliance with the requirements of regulatory bodies;
- Communicating with clients and carrying out relationship management, including with investment managers, financial directors and external stakeholders;
- Supervising staff;
- Working with mergers and acquisitions on some occasions.

Specifically, actuaries in their day-to-day work may be responsible for the following:

- Developing new financial products;
- Conducting valuations of assets and liabilities;
- Advising on investment strategies and assessing the profitability of an investments portfolio;
- Calculating funding rates and considering assumptions for pension scheme liabilities;
- Analyzing risks related to locations for catastrophe claims;
- Measuring, monitoring and mitigating portfolio and enterprise risks;
- Overseeing asset and liability modeling, product development and profit testing;
- Preparing presentations, reports, valuations and quarterly updates.
- Actuaries may also be involved with the acceptance of proposals for new policies, with legal and taxation matters affecting life assurance, or with the investment of funds.

1.10 Conclusions

In today's business world companies are presented with many uncertainties and pressures. There is an increasing need for businesses to perform competitively while at the same time respecting the interests of customers, legislation and the economy in which it operates. Actuaries are the backbone of the insurance companies. They apply mathematical, statistical and economic analysis to a wide range of practical problems in insurance, investment, financial planning and management. They

are disciplined problem-solvers. A creative aspect of the work of actuaries is forecasting of future contingent events. Most actuaries working in insurance sector are mainly in life insurance. They are often found in high responsible management positions making decisions that are vital to the company's success. Insurance is a highly competitive business and actuaries are constantly making commercial decisions, which nevertheless must have a sound theoretical basis. The actuary's day-to-day tasks involve fixing premium rates and surrender values for policies and designing new types of policies. Actuaries have to make calculations also such as what funds will be needed to cover the company's long-term liabilities and advice on how profits should be distributed to policyholders and shareholders.

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