

THE ACTUARY IN PENSION FUNDS

Giampaolo Crenca – Principal di Crenca & Associati

Università Cattolica

9 giugno 2015, Milano

Who is the Actuary?

An actuary applies 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.

BUT ACTUARY IS NOT ONLY NUMBERS, BUT

EXPERIENCE

PROJECTS

IDEAS

MANAGERIAL SKILLS

The actuarial approach is not just a calculation but a way of understanding risk and a way as face uncertainty with appropriate quantitative tools.

Main fields of actuarial work

The future is uncertain and full of risk. Risk is the chance that an undesirable event will occur, but risk is also opportunity. That's where the Actuaries come in.

- ❖ Life insurance
- ❖ General insurance
- ❖ Reinsurance
- ❖ Investment
- ❖ Financial engineering
- ❖ Corporate finance
- ❖ Banking
- ❖ Enterprise risk management
- ❖ Pensions
- ❖ Social security
- ❖ Health care financing
- ❖ Government service
- ❖ Regulation and supervision
- ❖ Personal financial advice
- ❖ Education and research

What are the pension funds?

A pension fund, from a general point of view, can be established by a company, governmental institution or labour union in order to pay the future benefits (pensions) of the retired workers. Pension funds collect retirement savings from workers and their employers and invest this money in a wide range of assets.

What is the role of the actuary in a “defined benefit scheme” Pension Fund

1/3

- ▶ Many pension plans are organized as “*defined benefit schemes*”. A Pension Fund promises future retirees a certain amount of money per period.
- ▶ The contribution to be paid in a “*defined benefit*” fund is the dependent variable that is determined taking into account the level of income of the members, the demographic structure of the group, the level of public pension and other factors. This means that in a “*defined benefit scheme*” contributions should be increase if it is not satisfied to ensure the provision originally determined. The alternative is obviously a reduction of the defined benefits.

What is the role of the actuary in a “defined benefit scheme” Pension Fund

2/3

- ▶ There are several things they need to take into account:
 - In the most industrialized countries, current employees pay for the benefits of current pensioners. These pension systems are called “pay-as-you go”.
 - Pension fund managers thus have to estimate how long people will continue to work, how long they will probably live and how many people will be working in next decades, etc.....
 - Worker's benefits are normally related to his/her salary, either at the point of retirement or as an average over his/her work history.

What is the role of the actuary in a “defined benefit scheme” Pension Fund

3/3

- ▶ Often, pension benefits also need to be “indexed” with the general price level or with the income levels in the respective sector. Fund managers also have to take into account the future income level developments.
- ▶ On the basis of these data, pension fund managers try to ensure that the rate of return on their portfolio investments equals or exceeds the anticipated payout need. If investments fail to provide the money needed to pay pensioners, the pension contributions will have to increase, or the benefits cannot be fully paid.
- ▶ The level at which a pension fund can cover future liabilities is called “*funding ratio*”. A higher ratio signals that the fund is in a healthier position.

What is the role of the actuary in a “defined contribution scheme” Pension Fund

- ▶ The second way pension funds can be organized is through a “defined contribution scheme”. In this arrangement, the worker is primarily responsible for saving for his/her own retirement. The employer usually (but there are also other kind of arrangements) offers a range of mutual funds (also known as “unit trusts”) that the worker can use as a retirement savings vehicle. Typically in this scheme, the government allows workers to put money into their chosen mutual fund(s) before their salary is taxed, and the employer also contributes to the fund(s).

The activities of the Actuary in Pension Funds

- ▶ *Pension Fund's Actuarial Balance Sheet*
 - *Technical bases*
 - *Demographic bases*
 - *Etc*

- ▶ *Financial Management*
 - *Asset Liability Management*
 - *The Finance Function*
 - *The Advisor's role*

- ▶ *Annuities*

- ▶ *Administrative Management*

- ▶ *Responsible of the Fund*

Pension Fund 's Actuarial Balance Sheet

- ▶ To monitor and ensure the economic and financial sustainability of the pension fund by seeking a balance between assets and accumulated mathematical reserves (liabilities).
- ▶ The problems faced by the actuary to prepare the technical report concerning many factors, for instance demographic development of the insured population and retired at the balance sheet date, rate of return of investments, turn over, etc.... The Actuarial Balance Sheet is very important, above all about the “defined benefit schemes”.

- Analysis of demographic characteristics of members (such as sex and age) allows the identification of the middle temporal horizon and profile “risk/return”.
- Analysis of the financial markets, with reference to the various asset classes, which identify performance and the expected average volatility, and the Value at Risk according to the horizon time identified in the previous phase.
- A “risk/return” goal consistent with the profile of members of the fund is individuated.
- Asset allocation of investment to be defined.

- ▶ The pension fund should be able to cope with future liabilities without any cash problems and be forced to sell assets with the possibility of incurring in large losses due to fluctuations in market prices of assets.
- ▶ *Asset liability management is a procedure based on the matching between assets and liabilities in order to face and solve many problems: liquidity, interest rate of return, duration gap, asset allocation, etc....*

▶ *The Finance Function:*

- *Contributes to setting the investment policy*
- *Takes part in the selection of financial managers*
- *Checks the financial management and promptly prepares a report of an extraordinary nature for the Board in the event of significant changes in the risk/return*
- *Monitors the operations of the financial managers and the implementation of established strategies, preparing periodic reporting*
- *Verifies compliance with the instructions given according to the principles and criteria of investments*
- *Submits proposals to the Financial Committees and the Board about new market developments or changes to the policy investment*
- *Works with any Advisor and other entities, in order to provide support according to strategies to be implemented in terms of investments*
- *Provides for the definition, development and updating of procedures internal control of financial management, submitting them to the Board 's approval*

▶ *The Advisor's Role:*

- *Provides an independent assessment of market trends and assists the Board in setting the investment policy*
- *Processes analysis and supports the Board regarding the development and changes in the investment policy in order to ensure the consistency of activities undertaken with the established goals.*

Annuities

- *Transformation coefficients of the capital in annual annuity*

The coefficient of transformation in annuity or pension is used to calculate the annual amount of the old-age pension and it is calculated on a statistical basis according to the age at retirement because it takes into account the average life expectancy, incorporating also an interest rate in the long term.

Additional services

- *Risk of death and disability*

Referring to the coverage of the risks of disability and death, Pension Funds make use of appropriate agreements with Insurance Companies. In this case, the Actuary may be asked to provide advice to the signing of these agreements and to examine temporal trends in claims in order to ensure the fairness of the price paid; similar advice can be given in favor of the Pension Funds that make use of appropriate agreements for the payment of annuities.

Administrative Management

- ▶ The Actuary can support in the authorization and management of a Pension Fund, in the preparation of the business plan, in the selection of the administrative manager, the Depository Bank and the Insurance Company.
- ▶ The Actuary can evaluate the changes of regulation and the impact on the equilibrium of the Fund.

Responsible of the Fund

1/2

The Responsible:

- ▶ monitors compliance with the law and the regulations, respect of good practices and principles of good management of the Fund in the exclusive interest of the members;
- supervises the administrative management of the Fund: checks the correct keeping of the accounting books and accounting records of the Fund;
- oversees the transparency measures taken against the members, for instance:
 - Checks that the costs borne by the members specified in the rules and any charges related to operating results are correctly applied;
 - the completeness and comprehensiveness of the information contained in the periodic communications to members;
 - the adequacy of the procedure for the management of complaints and the treatment of individuals exposed;
 - the timeliness of the satisfaction of the demands of the members, in particular with reference to the time of the benefits' payment.

- ▶ monitors the solutions adopted by the Company to identify conflicts of interest and to prevent them;
- ▶ controls the proper execution of the contract for the appointment of the Depository Bank, as well as respect of insurance agreements/conditions for the payment of annuities and, where present, the agreements/conditions related to death and disability benefits.
- ▶ gives timely notice to the Authority about anomalies and irregularities.

Thank you for your attention!!

Giampaolo Crenca