

Pension Schemes

Providers of Pension Schemes

There are many different sources from which individuals can derive a pension income

- State Benefits
- Personal Pension Plans
- Inheritance
- Company Pension Schemes
- Equity Release

We are mainly concerned with company pension plans in this section

Different Types of Pension

Fundamentally company pensions divide into two different types:

- Defined Contribution (a fixed contribution is made and you do not know what the pension will be)
- Defined Benefit (a fixed benefit is decided and you don't know how much to contribute)

There can also be all kinds of mixed and hybrid systems

Country Specific Regimes

- UK - tend to have funded occupational pension schemes (Large migration from DB to DC over last 25 years)
- Germany - pension promises tend to be liabilities on company balance sheet which are not funded
- France - Very large state provision
- USA - similar to UK but further down DB -> DC route
- Holland - large multi-employer funded schemes

Scheme Funding

Typically occupational pension schemes are funded as the benefits accrue

Some schemes (notably the UK state pension scheme) is unfunded and benefits are paid from taxation and national insurance contributions as they are paid

DC schemes are often effectively terminally funded as the pension pot builds up over a lifetime and then buys an annuity in one lump sum at retirement

Defined Benefit Occupational Schemes

In the main actuaries work out how much money you need to invest as benefits accrue in occupational pension schemes to pay the benefits as they fall due.

So we mainly deal with Defined Benefit, Occupational Schemes

This is what this chapter is about

What Benefits do they provide

- Pensions
- Spouses pensions
- Children's pensions
- Death in service benefit
- Death in deferral benefit
- Early retirement benefit
- Deferred retirement benefits

In the coursework you will perform a full pension scheme valuation

Coursework Extensions

When your coursework is complete you will be able to test the impact on scheme funding of different types of benefit.

You will also be able to consider how much risk each type of benefit exposes the pension scheme funding to.

Try the following exercises:

Death in Service

To save money the company decides to halve the death in service benefit to 2 times salary. Assess how much this reduces the cost of the scheme.

Pensionable salary.

Given that most members will also receive a basic state pension, the company decides to reduce the salary for pensionable service by £8,000 per member. Calculate how much money this will save the scheme.

NRA

To save money and encourage workers to stay in the firm for longer the company decides to increase the normal retirement age from 65 to 68. Assess how much money this saves.

Spouse's pensions

In order to make the company more attractive as an employer - it decides to offer spouse's pensions for employee's who have died. Assess the cost of this for death in service and also for death of pensioners and deferreds.

Exam Type Questions

Question 1

You are a medium sized employer in the UK and you wish to improve your pension scheme to try and attract and retain key staff. However you have quite a limited budget which which to fund additional benefits. Discuss the type of changes you may make and give indicative costs of these changes.

[10 marks]

Question 2

You currently sponsor a UK pension scheme and for legacy reasons there is a spouse's pension for male employees but not for female employees. Equality legislation requires you to change this so that both male and female employees are treated the same. Discuss the financial and practical implications.

[10 marks]

Question 3

You are building a Monte Carlo MDM model for a pension scheme and for a given year the forces of decrement are 0.1% for death, 3% for early retirement and 10% for leaving to deferred. The first three numbers that your random number generator produces from the $U[0, 1]$ distribution are 0.4, 0.01 and 0.1. Calculate what decrement happens and when.

[6 marks]