

Delayed claim modelling and fair value discounting

Background

Incidents may be reported to the insurance company long after they have occurred. This is for instance the case for neck injuries (whiplash) in automobile insurance; it may take up to a couple of decades(!) before the symptoms arrive. Insurance companies are obliged to set aside reserves to cover such incurred but not reported (IBNR) claims. Valuation requires a discount, and as in life insurance, there is a growing tendency to use the market interest rate curve.

Objective:

Present the multinomial approach to IBNR modelling and compare valuation using a fixed technical rate with one using market discounting. You must include a discussion of what market discounting means.

Material:

Section 5 from Chapter 8: “Modelling claim frequency”, Section 6 from Chapter 11: “Liabilities over long”, Section 5 from Chapter 13: “Stochastic asset models” and Section 3 from Chapter 15: “Integrating risk of different origin”.

Main points:

The presentation (45 minutes) should cover

- IBNR modelling
- Fair value accounting
- An illustration of the effect of changing from fixed to market discounting where the latter is taken from the Wilkie model of the money market. Use the IBNR model from Section 8.5 with a loss distribution of your choice. Make sure that the two discounting regimes are comparable.
- A comparison of present values for the actual losses from the IBNR scheme based the two different discounting regimes. Simulate the losses and compute the present values.