

Mortality IBNR

The effects of non-claimers



This note introduces the opportunities arising and considerations stemming from analysing non-claiming policies in funeral insurance portfolios.

INTRODUCTION

For several reasons, funeral insurance benefits are not always claimed upon the death of the insured. Policies will remain in the administration as active contracts, but should have the inactive status. Consequently, the policies which are not claimed will affect reserves, cash-flow patterns and possibly even management decisions. By separately analysing these policies an insurer is able to:

- Better estimate the market value of its insurance liabilities
- Produce more accurate cash-flow projections by using more accurate assumptions
- Possibly improve the solvency ratio under Solvency I and Solvency II
- Better understand the risks faced in its portfolio

This note introduces how the circumstances under which policies are not claimed arise; highlights the effects on the key portfolio characteristics, studies and projections; and discusses the potential benefits and issues faced by an insurer dealing with non-claiming policies. Hereafter non-claiming policies are sometimes referred to as 'incurred but not reported' (IBNR) policies.

BACKGROUND

In some cases, policyholders do not claim their benefits for their funeral insurance policies. This may be for a number of reasons, such as:

- The policyholder's dependents were not aware the policy existed. This could occur if the parents took out funeral cover for a child and the child was never informed, or if a policyholder never discussed the funeral insurance policy with their dependents.
- The policyholder ceased paying premiums, assuming the policy to be cancelled, when, in fact, a reduced benefit was available.

- There is no one to claim the policy, for example, if the policyholder no longer has any living dependents.

In these cases, a policyholder's death will not be reported to the company and the policy remains in the portfolio. This means that the reserve is overstated, portfolio studies become distorted and projection models use incorrect assumptions, which affects the major cash flows, including premium income, expenses and death benefit outgo.

BEST ESTIMATE OF LIABILITIES

The best-estimate liability of an insurer is essentially the payable cash flows less the receivable cash flows, discounted using an appropriate interest rate term structure. By separately analysing the non-claiming policies and reducing the death benefit outgo accordingly, the net cash flow and hence the best-estimate reserves are reduced. The effect on cash flows is described in more detail below.

SOLVENCY RATIO

The capital requirement is calculated differently according to Solvency I and Solvency II.

Under Solvency I, the capital requirement is a function of the mathematical reserves and sum at risk. The amount of required capital is overstated due to the unclaimed contracts.

Under Solvency II, the insurer can increase the solvency ratio through increasing the available capital. The capital requirement will depend on the effect of the shocks on the best-estimate reserves. The effect on the SCR is still under investigation; however, there may be some risk diversification benefit, resulting in a lower capital requirement. By reducing the death benefits payable to reflect the non-claimers, we reduce the sensitivity to the mortality shocks, but we introduce a new risk of non-claimers actually claiming. Such a risk shall need to be identified as part of the ORSA process.

PROFITABILITY

If reserves related to non-claimers are released, this will result in an immediate once-off profit.

Another advantage is that projections of future profitability will become more accurate by incorporating the IBNR methodology into the projection model. The explicit reduction of death benefits outgo for non-claimers better matches the actual benefit payments.ⁱ

ASSUMPTIONS SETTING

A policyholder who does not claim upon death will have an effect on mortality assumption studies performed on the portfolio.

This is caused by two effects:

- A policy which does not claim means that the reported number of deaths in any given period is lower than the actual number of deaths, and the mortality experience factorⁱⁱ will be too low.
- Policies which do not claim remain in the portfolio, and these IBNR policies build up over time. These IBNR policies cannot lapse, become paid up or die again; however, they are treated as if they can because they are still in the portfolio. The expected number of deaths would be calculated using too great a number of lives. So the mortality experience factorⁱⁱ will be too low.

These two effects combined give a mortality assumption which is too low and, if used in financial projections, will distort the cash-flow pattern. The discussion focuses on mortality experience, but similar arguments apply for lapse experience.

PROJECTING CASH FLOWS

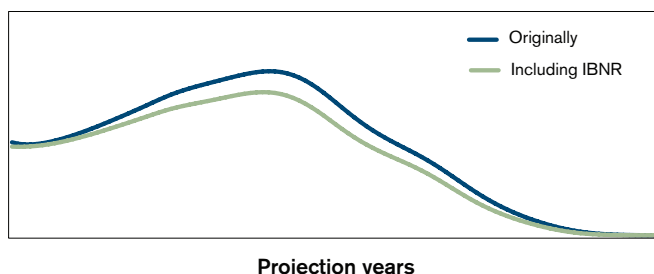
The results from assumption-setting investigations are used to update assumptions for financial projections. If the assumptions used are invalid, then the cash flows may be inappropriate for their purpose, whether the purpose is a valuation or risk assessment.

If a policy remains on the books when it is actually IBNR, then it will be included in future financial projections. Even though for some cases (e.g., lapses), this may show reasonably accurate projections of the actual number of decrements, a major problem is the mortality assumption. The mortality assumption has a direct impact on (projected):

- Death benefit outgoes
- Expenses
- Premium income and an indirect effect on other decrements.

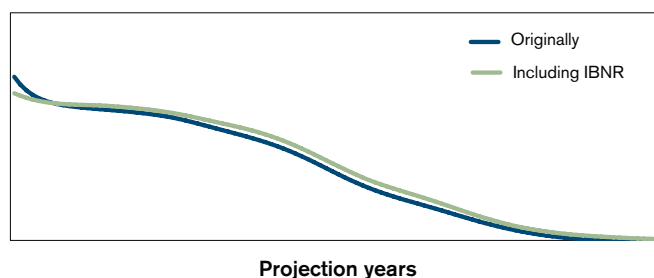
Death benefit outgo is projected using a lower mortality assumption than is reflective of the reality. This implies that people are living longer. Any reduction in death benefit payments in the first few projection years is compensated by increased benefit payments later in the projection. This is not accurate because some policyholders are not claiming and there should be a reduction in death benefit outgo.

FIGURE 1: DEATH OUTGO



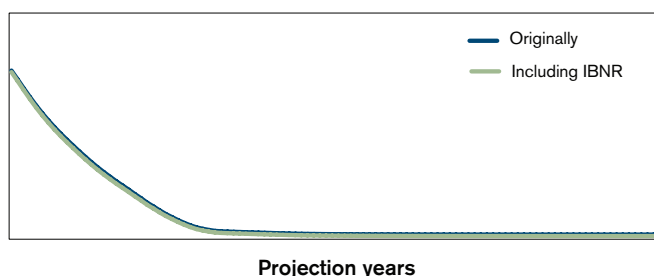
The effect on expenses involves inaccurate terminal (excasso) expenses being projected as well as renewal expenses, due to the fact that IBNR policies do not claim and remain in the portfolio.

FIGURE 2: EXPENSES



Premium income is also affected by non-claiming policies. The projection is inaccurate because an incorrect mortality factor is used; however, the effect is small in comparison to the effect on benefit outgo and expenses.

FIGURE 3: PREMIUMS

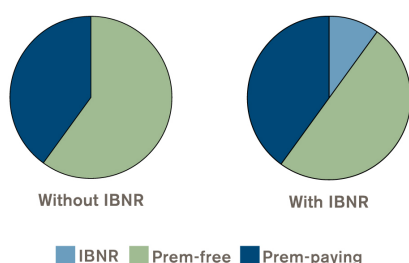


WHICH CONTRACTS ARE AFFECTED?

While the issue has been described in a broader sense in the sections above, it can be seen that the issue can be narrowed down to a more specific group of policyholders. It can be concluded that policyholders currently paying premiums are still alive. If we know they are alive then, by definition, they cannot be IBNR. IBNR policies can only originate from non-premium paying policies.

Following from this we can split the non-premium paying policies at the valuation date into those assumed alive and those assumed IBNR, to reflect the build-up of non-claimers in previous years.

FIGURE 4: POLICYHOLDERS AT VALUATION DATE



IS MORTALITY IBNR RELEVANT TO A SPECIFIC INSURER?

There are a few simple checks which an insurer can perform to determine if there are IBNR policies in its portfolio:

- The insurer can compare the number of policies above 99 years of age in its portfolio to those alive according to the national statistics database.ⁱⁱⁱ
- The insurer can study the results from the latest mortality investigations. If the results for older age groups are significantly lower than for younger ages, then IBNR policies are present in the portfolio.

BENEFITS FOR LIFE INSURERS

Benefits for an insurer which chooses to quantify the effects of IBNR policies include:

- Better estimate the market value of its reserves
- Possibly increasing its solvency ratio under Solvency I and Solvency II
- A better understanding of the risk profile of its portfolio
- Possible increased profitability and more accurate profit projections
- More accurate financial cash-flow projections
- The opportunity to better set the underlying assumption

HOW TO QUANTIFY IBNR POLICIES

A key question for insurers is how to quantify the effect of non-claimers. The underlying concept is that each policy has a probability that it will not claim upon death of the policyholder. Two sets of parameters need to be estimated:

- The proportion of policies which are already IBNR at the valuation date. This is to account for the build-up of previous non-claimers in the portfolio and should be presented per age group.
- A set of future probabilities which represent the probability of a policyholder's dependents not claiming upon death of the policyholder.

Milliman has developed, implemented and parameterized an IBNR model for an insurer in the Netherlands.

CONSIDERATIONS FOR THE INSURER

There are a few questions which an insurer will need to consider:

- What is the best way to incorporate the IBNR methodology into the cash-flow projection model?
- What are the appropriate non-claimer probabilities?
- How should the to non-claimer risk be estimated?
- If policyholders never claim, when can the technical reserve be released?
- What happens when reserves are released? Will IBNR reserves be required? Are the releases restricted to remain within the insurance company or available for the benefit of the shareholders?

REGULATORY UNCERTAINTY

It remains unknown whether the regulator will allow credit to be taken for non-claiming policies, or how such cases will need to be treated from a regulatory perspective. In some markets, the insurer may also be required to trace a non-claiming policyholder's dependents. In the Netherlands this is currently not the case. Even if it is not allowed then there is still a benefit for insurers in the sense that they can predict their cash flow patterns more accurately and benefit from delayed future benefit payments (more discounting). In any case, we recommend that you consult with your legal and tax advisers if you are considering implementing the techniques described in this note.

NOTES

i This has been back-tested against one insurance portfolio in the Netherlands.

ii The mortality experience factor is a measure of the portfolio's actual mortality, compared to the tables used by the financial projection model. It is measured by comparing the actual deaths in a portfolio to the expected deaths (generated by the cash-flow projection model).

iii According to the CBS, there were 3,023 people aged 99 or older alive in the Netherlands in 2011. <http://statline.cbs.nl/StatWeb/publication/?DM=SLNL&PA=7461BEV&D1=0&D2=1-2&D3=0-100&D4=0,10,20,30,40,50,I&HDR=T,G3&STB=G1,G2&VW=T> ~



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