

Case Study 3 – GMM approach

The 'building blocks approach' is the standard framework, as stated by IFRS 17, for calculating the value of insurance contracts. According to this method, the contract's value is calculated as the sum of the following elements:

- Block 1: Sum of the future cash flows that relate directly to the fulfilment of the contractual obligations.
- Block 2: Time value of the future cash flows. The discount rates used to determine the time value reflect the characteristics of the insurance contract.
- Block 3: Risk adjustment, representing the compensation that the insurer requires for bearing the uncertainty in the amount and timing of the cash flows.
- Block 4: Contractual service margin (CSM), representing the amount available for overhead and profit on the insurance contract. The purpose of the CSM is to prevent a gain at initiation of the contract.

A Case Study

The impact of the new IFRS standards is analyzed for the following policy:

- The policy covers the risk that a mortgage owner deceases before the maturity of the loan. If this event occurs, the policy pays the remaining notional of the loan.
- The mortgage is issued on 31 December 2015 and has an initial notional value of € 200,000 that is amortized in 20 years. The interest percentage is set at 3 per cent.
- The policy pays an annual premium of € 150. The annual estimated costs of the policy are equal to 10 per cent of the premium.

In the scenario of this policy, an insurer has to anticipate the possibility that the policyholder's life expectancy would shorten as well as the possibility that costs will rise (for instance, as a result of higher-than-expected inflation). We assume the insurer uses the SII standard formula, according to which total capital equals the sum of capital for each category of risk, calculated using a 99.5 percent VaR approach and taking diversification into consideration.

The cost of capital would then be calculated as follows:

- Capital for mortality risk is based on an increase of 15 per cent of the mortality rates.
- Capital for expense risk is based on an increase of 10 per cent in expense amount combined with an increase of 1 per cent in inflation.
- The diversification between these risk types is assumed to be 25 per cent.
- Future capital levels are assumed to be equal to the current capital levels, scaled for the decrease in outstanding policies and insurance coverage.
- The cost-of-capital rate equals 6 per cent.

At initiation (i.e. 2015 Q4), the value of the contract under the new standards equals the sum of:

- Block 1: € 482
- Block 2: minus € 81
- Block 3: minus € 147
- Block 4: minus € 254

Consecutive changes

At each reporting date, the insurer will calculate the total of blocks 1, 2, and 3 (also known as the fulfilment cash flows) and the CSM balance. The sums usually fluctuate over time when new projections of mortality and interest rates are made. We identify four elements that, taken together, will affect the building blocks:

Step 1. Time effect

Over time, both the fulfilment cash flows and the CSM are fully amortized. The amortization profile of both components can be different, leading to a difference in the reserve value.

Step 2. Realized mortality is lower than expected

The actual mortality in our case study is around 10% lower than anticipated. The P&L account for this discrepancy, which results in a bigger profit in the first year. The impact on the CSM and fulfilling cash flows is minimal. As a result, the reserve value will essentially stay the same.

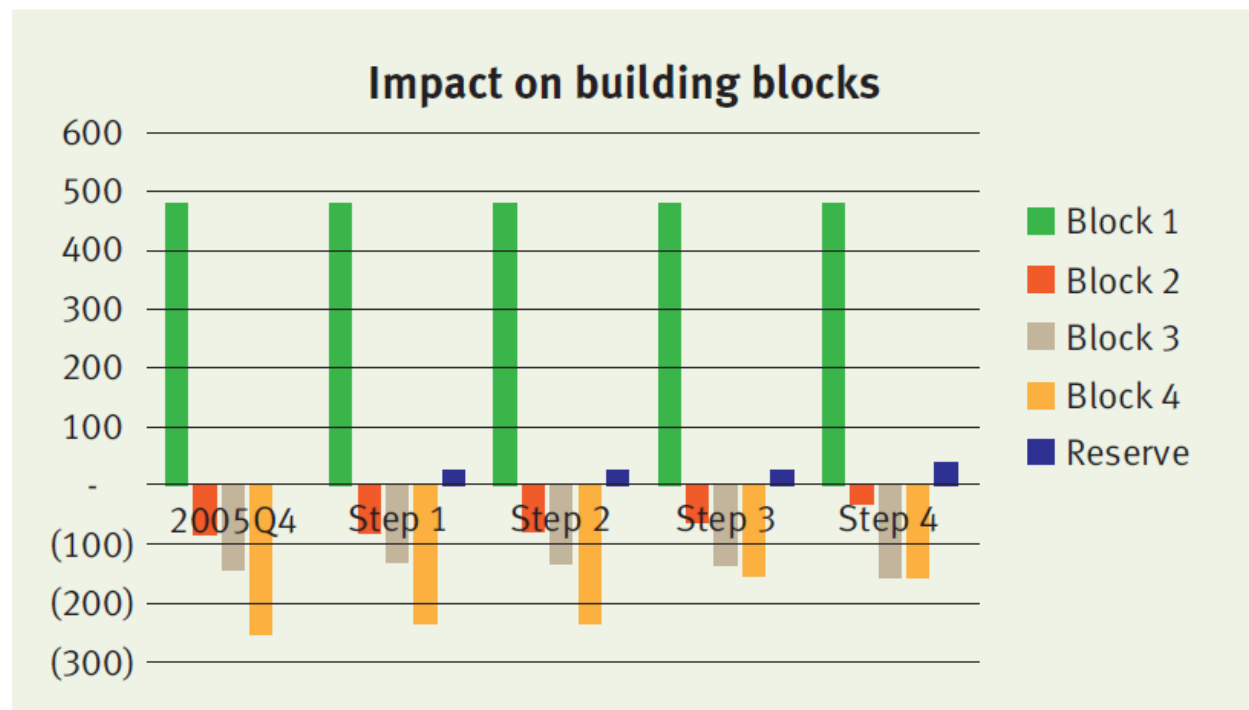
Step 3. Update of mortality assumptions

Updates of the mortality assumptions affect the fulfilment cash flows, which is simultaneously recognized in the CSM. The offset between the fulfilment cash flows and the CSM will lead to a very limited impact on the reserve value. In this case study, the update of the life table results in higher expected mortality and increased future cash outflows.

Step 4. Decrease in interest rates

The fulfillment cash flows change as a result of interest rate curve updates. Instead of being eliminated in the CSM, this difference is recorded in other comprehensive income. As a result, a decline in the discount curve will cause a substantial alteration in insurance liability. The assumption made in our case study is that interest rates will drop from 2% to 1%. Thus, the increase in fulfilling cash flows is instantly represented by an increase in reserve value.

The impact of each step on the reserve value and underlying blocks is illustrated below.



Onwards

As expected, the policy will change over time, with no longer-changing discount rates and expected mortality realization. The reserve value and P&L will change over time as shown below.

The profit gradually decreases over time in line with the insurance coverage (i.e., outstanding notional of the mortgage). The relatively high profit in 2016 is (mainly) the result of the realized mortality that was lower than expected (step 2 described above).

As previously stated, in order to measure the CSM and all subsequent adjustments, the insurer would have to go all the way back to the original recognition under the full retrospective application. As a result, insurers would have to go back and thoroughly examine their methods for managing policies. By allowing insurers to adopt the guidelines three years after final publication, the IASB has recognized this. Insurers

have already begun their impact evaluations and will need to expend a significant amount of operational work. The topic of risk adjustment appears to be complex and calls for knowledge of the insurer's capital models. Infigo's team can support these qualitative analyses and can rely on its experience with the implementation of Solvency II.

