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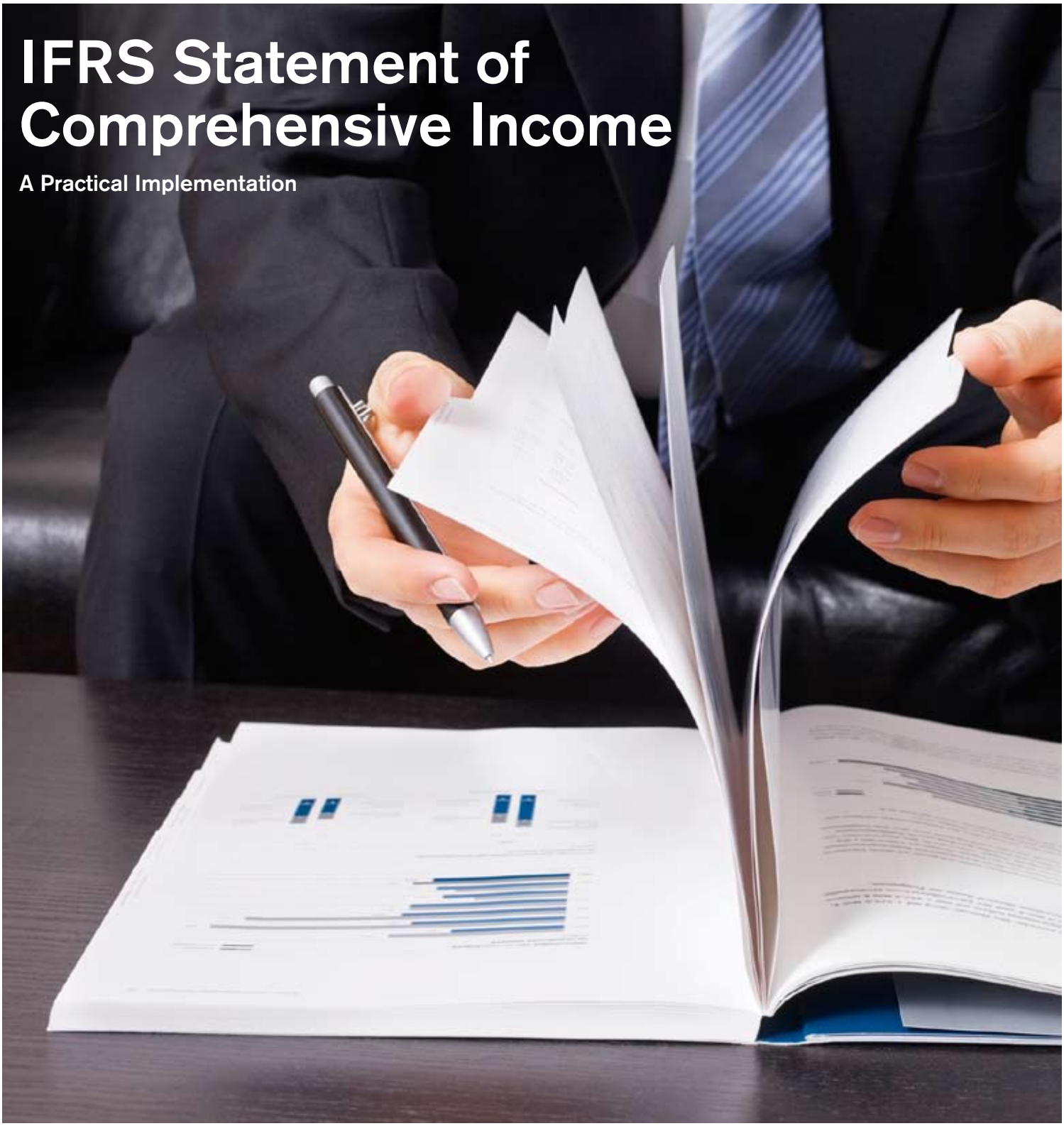
Milliman

IFRS Statement of Comprehensive Income

A Practical Implementation

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1 INTRODUCTION AND BACKGROUND

In the past, technical provisions (TP), or policy reserves, as reported in the statutory accounts, were often determined as the present value of cash outflows minus the present value of net premiums discounted using fixed valuation interest rates and taking into account only mortality assumptions. This relatively simple calculation of the TP and the usage of locked assumptions over time led to a relatively simple analysis of the change of the TP from one period to the other.

Under IFRS 4 Phase II, insurers will have to measure their insurance contracts at current fulfilment value, which is defined as the sum of:

1. The *expected present* value of the future cash outflows less future cash inflows that will arise as the insurer fulfils the insurance contract, adjusted for the effects of uncertainty about the amount and timing of those future cash flows (present value of the fulfilment cash flows).

2. A *residual margin (RM)* that eliminates any gain at inception of the contract. A residual margin arises when, at inception of a contract, the expected present value of the future cash outflows plus the risk adjustment is less than the expected present value of the future cash inflows.

The present value of fulfilment cash flows (the first item above) can be split into the best estimate of the liability (BEL), the time value of options and guarantees (TVOG), and the risk adjustment (RA). We will refer to these separate items throughout this paper.

The new definition of TP leads to a completely new method of analysing the movement of the provision from one reporting period to another. Not only will there be more assumptions to analyse, but, because assumptions are not locked in, they will need to be reset at each valuation date based on the insights of the insurance company at that moment. In addition to the development of the aforementioned components, the time value of options and guarantees, the risk adjustment, and the development of the residual margin will make the analysis a challenge.

In the IFRS 4 Phase II exposure draft ED/2010/8, guidelines are set out for the statement of comprehensive income. These guidelines will lead to new key performance indicators, such as underwriting margin and the difference between expectation and realisation of actuarial and economic assumptions.

In this paper, we will present a practical implementation of the analysis of change of the technical provision and a method to analyse the profit and loss. In the IFRS 4 Phase II exposure draft ED/2010/8, guidelines are set out for the statement of comprehensive income. These guidelines will lead to new key performance indicators, such as underwriting margin and the difference between expectation and realisation of actuarial and economic assumptions.

In Section 2 of this paper we describe the analysis of the technical provision from one reporting period to another. In Section 3 we set out the guidelines for comprehensive income and provide a practical way of producing the comprehensive income statement by using the analysis of change of the technical provisions as described in Section 2. In Section 4 we provide a numerical example. Finally, in Section 5 we describe some practical implications.

2 ANALYSIS OF CHANGE OF THE TECHNICAL PROVISION

Many European insurers are used to reporting the analysis of change of their European Embedded Value (EEV) or Market Consistent Embedded Value (MCEV). By their natures, MCEV and the proposed IFRS 4 TP are (partially) based on similar concepts. It seems logical to base the analysis of change of the TP on the analysis of MCEV earnings as it is already specified by the CFO Forum. An advantage of using the same approach is that is makes a comparison between different reporting standards possible. For companies not already reporting embedded values, the implementation of TP analysis will require more resources and training.

By their natures, MCEV and the proposed IFRS 4 TP are (partially) based on similar concepts.

The analysis of MCEV earnings shows the change in covered business MCEV from one reporting period to the next. As with the analysis of MCEV earnings, we can analyse the movement in TP with the following Analysis of Change (AoC):

A. Opening TP
B. Opening adjustments
C. Adjusted opening TP
D. Expected return for the period
E. Expected cash flows/release of margins expected in the TP
F. New business
G. Operating experience variance
H. Change in operating assumptions
I. Other operating variances
J. Economic variances
K. Change in economic assumptions
L. Closing adjustments
M. Closing TP

The following paragraphs will explain the meaning and calculation of the different lines in the AoC.

2.1 (Adjusted) opening TP

The **opening TP** (Line A) is taken from the IFRS balance sheet as published in the previous period.

Whether an adjustment will be reported as an **opening adjustment** or **closing adjustment** (Line B or Line L) depends on the moment the adjustment occurred. Examples of opening and closing adjustments are sales or purchases of portfolios, disposals, and acquisitions.

Adjusted opening TP (Line C) is the sum of Lines A and B.

2.2 Expected return for the period

The **expected return for the period** (Line D) is derived as the expected movement in TP during the period as a result of unwinding one period of discounting. For the BEL and the TVOG the expected return will be calculated as the value at start-of-period multiplied by the discount rate of the period.

2.3 Release of cash flows / margins captured in the TP

The **expected cash flows and release of margin captured in the TP** (Line E) are what was assumed to be incurred in the current period when calculating the BEL at the beginning of the period. In addition to the release of cash flows captured in the BEL, included also in this line are the expected release of TVOG, Risk Adjustment (RA), and Residual Margin (RM).

The most complex items in the AoC of the TP are the operating experience variance and economic variances.

2.4 Operating and economic experience variance

The most complex items in the AoC of the TP are the **operating experience variance** and **economic variances** (Lines G and J). The start-of-period TP rolled forward to the end of the period (Line C + Line D + Line E) is not (necessarily) equal to the end-of-period TP because the insurance portfolio does not exactly develop as projected in the BEL. One important reason for this deviation is that the projections are based on assumed rates of mortality and lapse where in reality people either do or do not die, surrender, etc.

For the experience variances we distinguish two types:

1. Variances in cash flows in the reporting period
2. Variances in technical provisions at the end of the period

Operating variances are differences between actual and assumed experience arising from actuarial assumptions such as mortality, surrender, exercising options to become paid-up, and disability. Economic variances are differences between actual and assumed experience arising from economic assumptions such as differences in fund returns in unit-linked (UL) contracts. In the calculation of the BEL of UL contracts a return is assumed that reflects the dependency on the actual assets. In reality the return will be different from this assumed return, which will lead to a different fund value at the end of the period, with different future cash flows.

The differences in cash flows in the reporting period do not have a direct impact on the TP at the end of period and are therefore not necessary for the TP AoC. Nevertheless, to provide a more complete analysis of the profit by cause, differences in expected and actual cash flows split by actuarial assumption are typically calculated.

To be able to analyse the movement of the TP from start to end of the period and not lose information needed for the specification of profits by cause, the following variances should be calculated:

1. **Variances in BEL arising from actuarial assumptions**: This is the variance in end-of-period BEL that is due to differences between actual and assumed experience during the reporting period.

2. **Variances in cash flows arising from actuarial assumptions**: This is the total variance in cash flows in the reporting period that is due to differences between actual and assumed experience, specified by assumption.

3. **Variances in cash flows arising from actuarial assumptions but specified by cash flows**: This is the total variance in cash flows in the reporting period that is due to all experience differences, specified by cash flows (e.g., premium, death claims, etc.) and with an opposite sign of the effect in the bullet point above.

The sum of 2 and 3 above is equal to zero and these lines are only specified to be able to make a better profit-by-cause analysis. For example, if there is an effect on premiums that is due to mortality, this effect will be reported as a *difference in cash flows due to mortality* (in 2) and will be taken out of the cash flow *gross premiums* (in 3). All differences in cash flows will be allocated to causes which make it possible to set up a statement of comprehensive income.

To determine the variance in BEL, two steps are defined:

1. Calculate the expected change in BEL based on assumed experience in the model.
2. Calculate the actual change in BEL based on actual experience that occurred in the reporting period.

The expected change in the BEL is calculated by setting each actuarial assumption in turn to zero. The expected change in BEL for the first assumption is calculated by comparing a projection with

a zero chance of that decrement occurring in the reporting period with the projection based on assumptions at start-of-period. For the next assumption this will work in the same way. Every time an assumption is added to the data, the expected BEL will be compared to the expected BEL of the previous calculation. This process will produce the amount of BEL that was expected to be released during the period because of assumed decrements (mortality, lapse, etc.).

To calculate the actual change in the BEL in the reporting period the BEL will be calculated based on contract information based on the situation just before the decrement occurred and contract information based on the situation immediately after the decrement occurred. The difference between these two calculations will give the effect of the change on the BEL end-of-period.

Besides variances in the BEL, there will also be differences in the actual release of TVOG, RA, and RM and the expected release of TVOG, RA, and RM, which are due to a different development of the portfolio than expected. These differences will be included in this line too.

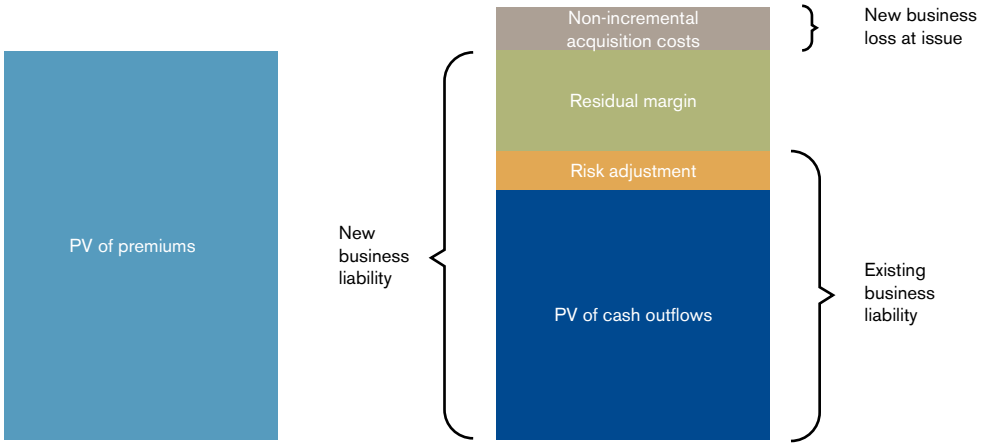
Besides variances in the BEL, there will also be differences in the actual release of TVOG, RA, and RM and the expected release of TVOG, RA, and RM, which are due to a different development of the portfolio than expected.

2.5 New business

Line F of the AoC refers to the TP at the end of the period for contracts reported as new business. New business can be treated in the same way as decrements in the paragraph above, except that for new business the created BEL and not the difference between actual and expected BEL is reported.

At inception of the contract the insurer receives a (single) premium, has to set up a reserve for the contract, and will incur acquisition costs and commissions. The RM equals the difference between the present value of the premiums, the present value of cash outflows, including incremental acquisition costs, and the RA. Non-incremental acquisition costs at issue are not taken into account in this equation and will be incurred in the profit and loss statement (P&L); see Figure 1. If the RM is positive this margin will be released during the term of the contract. If the RM is negative, the margin will be immediately reported as a loss in the P&L.

FIGURE 1: NEW BUSINESS



2.6 Other operating variances

To make a comparison between the MCEV AoC and the TP AoC possible, changes in methodology or valuation models are reported as **other operating variances** (Line I).

2.7 Changes in operating and economic assumptions

Change in operating assumptions and **change in economic assumptions** (Lines H and K) show the movements in TP that are due to changes in best estimate assumptions.

The effect of assumption changes can be based on one central calculation for every assumption change or by changing assumptions step by step.

The effect of assumption changes can be based on one central calculation for every assumption change or by changing assumptions step by step. If the first method is chosen there will be an extra calculation needed that will give the difference between the sum of all changes and the total effect of all changes. In the second method the choice of the order of the calculation has an effect on the outcome and should therefore be predefined.

2.8 Closing TP

The closing TP (Line M) equals the TP at the end of the period based on end-of-year (EoY) assumptions and including new business written in the period.

3 STATEMENT OF COMPREHENSIVE INCOME

3.1 IFRS 4 Phase II guidelines

In the IFRS 4 Phase II exposure draft ED/2010/8 the following guidelines on the statement of comprehensive income are set out:

At a minimum, an insurer shall for insurance contract include line items in its statement of comprehensive income that present the following amounts for the period:

- Underwriting margin, disaggregated into:
  - The change in risk adjustment
  - The release of residual margin

- Gains and losses at initial recognition, disaggregated into:
  - Losses on insurance contracts acquired in a portfolio transfer
  - Gains on reinsurance contracts bought by a cedent
  - Losses at initial recognition of an insurance contract

- Acquisition costs that are not incremental at the level of an individual contract

- Experience adjustments and changes in estimates, disaggregated into:
  - Differences between actual cash flows and previous estimates of those cash flows (i.e., experience adjustments)
  - Changes in estimates of cash flows and changes in discount rates
  - Impairment losses on reinsurance assets

- Interest on insurance contract liabilities

An insurer shall not present in the statement of comprehensive income:

- Premiums, which instead are treated in the same way as deposit receipts

- Claim expenses, claim handling expenses, incremental acquisition costs, and other expenses included in the measurement of the insurance contract, which instead are treated in the same way as repayments of deposits

The changes in estimates of discount rates and the interest on insurance liabilities shall be presented or disclosed in a way that highlights their relationship with the investment return on the assets backing those liabilities.

Using the AoC of the TP and combining this with the cash flow information of the reporting period makes it possible to set up the statement of comprehensive income as described above. In the next paragraph this practical implementation is worked out.

3.2 Practical implementation using AoC of TP

To set up a statement of comprehensive income we start by combining the current 'standard' profit and loss account with the AoC of the TP. For the 'standard' profit and loss account the following simplified calculation is done to calculate the gross profit:

To set up a statement of comprehensive income we start by combining the current 'standard' profit and loss account with the AoC of the TP.

- Add premium income
- Add investment return
- Subtract claims
- Subtract expenses
- Subtract commissions
- Subtract change in TP

If we replace the *change in TP* by the AoC of the TP as defined in Section 2 we can set up an income statement that is compliant with the guidelines set out in Section 3.1. In the AoC of the TP the sum of the expected release of cash flows, the actual cash flows that are due to new business, and the variances in cash flows will be equal to the actual cash flows as shown above. This makes it possible to delete premium, claims, expense, and commission cash flows from the income statement:

- Add premium income
- Add investment return
- Substract claims
- Substract incremental expenses
- Subtract non-incremental expenses
- Substract commissions
- Subtract change in TP
  - Expected return for the period
  - Expected release of cash flows / margins captured in the TP
  - New business
    - Creation of TP
    - Actual cash flows that are due to new business
    - Actual cash flows due to new business specified by cash flows
  - Operating experience variance
    - Variances in TP that are due to changes in insurance contracts
    - Variances in cash flows that are due to changes in insurance contracts
    - Variances in cash flows specified by cash flows
  - Change in operating assumptions
  - Other operating variances
  - Economic variances
  - Change in economic assumptions

Using the above defined lines we can distinguish the following results in the comprehensive income statement:

- **Result on interest**
  - Add investment return
  - Subtract expected return for the period
  - Subtract economic variances
  - Subtract change in economic assumptions

- **Gains and losses at initial recognition**
  - Subtract creation of TP for new contract
    - Best estimate liability
    - Risk adjustment
    - Residual margin
  - Subtract cash flows in period that are due to new contract
  - Subtract non-incremental acquisition costs

For every change in the liability contract the experience variance can be split into a variance in the value of expected future cash flows (the BEL) and the variance in the cash flows of the reporting period.

For every change in the liability contract the experience variance can be split into a variance in the value of expected future cash flows (the BEL) and the variance in the cash flows of the reporting period.

- **Experience adjustments (per change in insurance contracts)**
  - Subtract variances in BEL that are due to changes in insurance contracts
  - Subtract variances in cash flows that are due to changes in insurance contracts
- **Changes in estimates**
  - Subtract change in operating assumptions
- **Underwriting margin**
  - Change in risk adjustment
  - Release of residual margin

4 EXAMPLE

To be able to better understand the method for setting up a comprehensive income statement as described in Section 3, we provide an example.

4.1 Situation

An insurance company has a portfolio of 12,000 universal life policies with a 3% guarantee and profit sharing with a reserve of €19.200K at EoY 2008, with the following gross profit and analysis of change in reserve in 2009 based on current local accounting principles:

FIGURE 2

(AMOUNTS IN € 1,000S)	2009
PREMIUM INCOME	10,080
INVESTMENT INCOME	1,402
TOTAL INCOME	11,482
SURRENDER OUTGO	881
DEATH OUTGO	110
MATURITY OUTGO	-
TOTAL OUTGO	991
RENEWAL COMMISSION	202
INITIAL COMMISSION	432
PORTFOLIO COMMISSION	-
INITIAL EXPENSES	180
MAINTENANCE EXPENSES	350
TOTAL EXPENSES	1,164
INCREASE IN RESERVE	8,507
GROSS PROFIT	820
ANALYSIS OF INCREASE IN RESERVE	
RESERVE START OF PERIOD	19,200
PREMIUM INCOME	10,080
EXPENSE LOADINGS	-1,241
GUARANTEED INTEREST	841
PROFIT SHARING	2
EXPECTED DEATH STRAIN	-263
RELEASE OF RESERVE MORTALITY	-8
RELEASE OF RESERVE SURRENDER	-905
RELEASE OF RESERVE MATURITY	-
RESERVE END OF PERIOD	27,707

To understand the impact of IFRS 4 Phase II on the annual account, the insurer wants to set up a statement of comprehensive income for the year presented above. Suppose that, except for the change in the reserve, everything will remain unchanged after implementation of IFRS 4 Phase II.

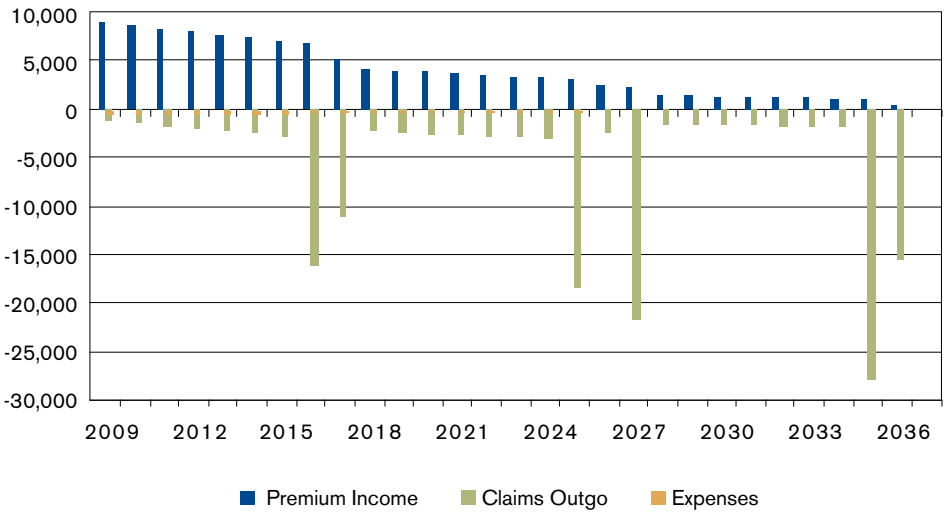
Based on their best estimate assumptions for EoY 2008 and EoY 2009 they calculated the following technical provisions for EoY 2008 and 2009:

FIGURE 3

(AMOUNTS IN € 1,000S)	2008	2009
BEST ESTIMATE LIABILITY	9,062	16,975
RISK ADJUSTMENT	462	526
RESIDUAL MARGIN	0	730
TECHNICAL PROVISIONS	9,523	18,231

The BEL is calculated as the present value of future cash flows.

FIGURE 4: CASH FLOWS EOY 2008



The risk adjustment is based on the cost of capital method, where the risk-based capital for non-hedgeable risks is set equal to 24% of the required capital under Solvency I and the cost of holding that capital is set equal to 6%.

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If under IFRS 4 Phase II for this insurance company only the calculation of the technical provision will change, then the gross profit for 2009 will be a gain of €620K (€820 + €8,507 – €8,708) as the increase in TP under IFRS 4 is €200 larger than under the current accounting requirements.

4.2 Analysis of change of the technical provision

To analyse the movement of the TP from EoY 2008 to EoY 2009, we start by calculating the *expected return for the period and the expected cash flows / release of margins captured in the TP*.

To do that we calculate the TP at EoY 2009, based on the TP assumptions but then discounted to EoY 2009. The expected BEL EoY 2009 is €16.6M. The expected return for the period is calculated as the difference between the expected BEL for EoY 2009 and for EoY 2008 minus the expected release of cash flows. The expected release of cash flows is equal to the cash flows projected to be incurred in 2009 in the BEL EoY 2008.

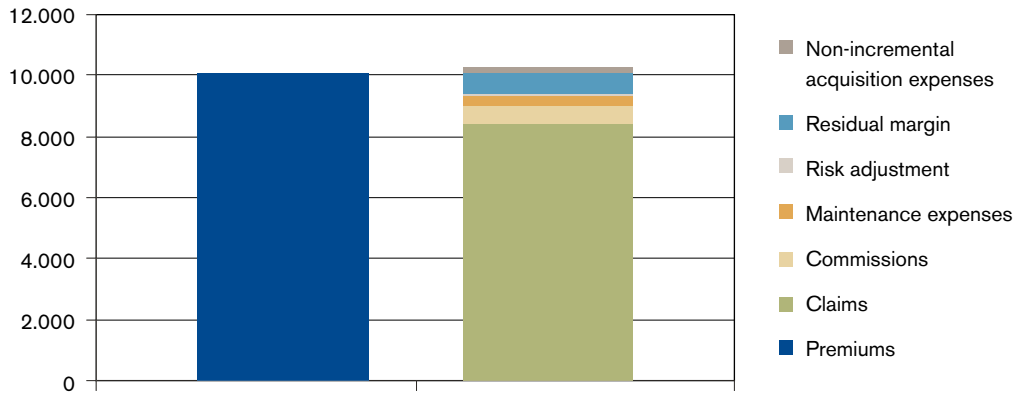
If during 2009 everything developed exactly as projected, then the analysis of change of the TP would be as shown in Figure 5.

FIGURE 5: EXPECTED TP EOY 2009

(AMOUNTS IN € 1,000S)	BEL	RA	RM
OPENING TP BOY 2009	9,062	462	
OPENING ADJUSTMENTS	0	0	
ADJUSTED OPENING TP BOY 2009	9,062	462	
EXPECTED RETURN FOR THE PERIOD	459		
EXPECTED RELEASE OF CASH FLOWS/MARGINS CAPTURED IN THE TP	7,122	-11	
• PREMIUM INCOME	9,000		
• SURRENDER OUTGO	- 1,277		
• DEATH OUTGO	- 128		
• MATURITY OUTGO	0		
• RENEWAL COMMISSION	- 180		
• INITIAL COMMISSION	0		
• MAINTENANCE EXPENSES	- 292		
EXPECTED TP EOY 2009	16,643	451	

During 2009 the insurer sold 1,200 policies with a total premium income of €1,080K. At point of sale, a calculation is made of the discounted cash flows, which led to a residual margin of €730.

FIGURE 6: RESIDUAL MARGIN



For this example we assume that the residual margin will not change during 2009. For the analysis of change of the TP we add the TP of the new business that is written to the expected TP EoY 2009. This TP EoY is based on the calculation at point of sale (PoS). The expected cash flows for new business are defined in order to be able to perform the profit analysis. The *New Business* line in the AoC of the TP will be as shown in Figure 7.

FIGURE 7: EXPECTED TP EOY 2009 INCLUDING NEW BUSINESS

(AMOUNTS IN € 1,000S)	TP	RA	RM
CREATION OF TP	-243	42	730
ACTUAL CASH FLOWS DUE TO NEW BUSINESS	521		
ACTUAL CASH FLOWS DUE TO NEW BUSINESS SPECIFIED BY CASH FLOW	-521		
• GROSS PREMIUMS	1,080		
• SURRENDER OUTGO	-63		
• DEATH OUTGO	-14		
• MATURITY OUTGO	0		
• RENEWAL COMMISSION	-22		
• INITIAL COMMISSION	-432		
• MAINTENANCE EXPENSES	-29		
EXPECTED TP EOY 2009 INCLUDING NEW BUSINESS	16,400	493	730

Until now we analysed the TP as if the portfolio at the beginning of the year (BoY) and the new business developed exactly as expected. Of course, in reality the portfolio developed in a different way than expected. In the best estimate we supposed that 684 people would lapse and that 5.3 people would die. In reality 437 people lapsed and five people died. Also in the calculation the assumption is made that the investment return equals the discount rate (2.54%). In reality the company made a return of 5% which led to higher profit sharing than expected and consequently a higher TP.

To quantify the effect of these differences in development of the portfolio we do the following three projections (all based on the portfolio BoY including new business PoS):

1. Calculate the EoY 2009 TP with mortality rate set to zero for 2009

2. Calculate the EoY 2009 TP with mortality rate and lapse rate set to zero for 2009

3. Calculate the EoY 2009 TP with mortality rate and lapse rate set to zero for 2009 and using the actual return of 5% for 2009

Comparing Calculation 1 above with the expected TP EoY 2009 including new business gives us the effect of mortality that is taken into account in the projection. Calculation 2 minus Calculation 1 leads to the expected effect of lapse and Calculation 3 minus Calculation 2 gives us the difference in TP that is due to a difference in investment return.

To calculate the difference between expectation and reality we now have to calculate the effect of the actual mortality and lapse.

To calculate the difference between expectation and reality we now have to calculate the effect of the actual mortality and lapse. To calculate the release of TP that is due to mortality and lapse we have to calculate the TP of the policies that lapsed and died as if they did not die or lapse. We do this by projecting the lapsed and died policies using the same assumptions as used in Calculation 3 above.

To understand the impact of lapse and mortality on the cash flows in the reporting period, we also perform a calculation with the lapsed and died policies where we set the lapse and mortality rate to 1 for 2009.

The line *operating experience variance* will be specified as shown in Figure 8.

FIGURE 8: OPERATING EXPERIENCE VARIANCE

(AMOUNTS IN € 1,000S)	TP	RA	RM
VARIANCES IN TP DUE TO:	222	11	
• MORTALITY	5		
• SURRENDER	217		
VARIANCES IN CASH FLOWS DUE TO:	-488		
• MORTALITY	-32		
• SURRENDER	-456		
VARIANCE IN CASH FLOWS SPECIFIED BY CASH FLOW	488		
• GROSS PREMIUMS	0		
• SURRENDER OUTGO	459		
• DEATH OUTGO	32		
• MATURITY OUTGO	0		
• RENEWAL COMMISSION	0		
• INITIAL COMMISSION	0		
• MAINTENANCE EXPENSES	-3		

The line *economic variance* will be specified as shown in Figure 9.

FIGURE 9: ECONOMIC VARIANCE

(AMOUNTS IN € 1,000S)	TP	RA	RM
VARIANCES IN TP DUE TO:	2		
• DIFFERENCE IN FUND RETURN UL CONTRACTS	0		
• PROFIT SHARING TRADITIONAL PRODUCTS	2		
TP EOY 2009 AFTER VARIANCE	16,624	504	730

If we add up all cash flows in the AoC of the TP we see that the premium and outgo cash flows are offset by the cash flows in the P&L. This means that all differences between expectations and reality are explained by changes in the portfolio. Only the difference between expected maintenance expenses and actual expenses cannot totally be explained by a different development of the portfolio. This is due to the fact that the actual expenses turned out to be higher as a result of inefficiency.

If we add up all cash flows in the AoC of the TP we see that the premium and outgo cash flows are offset by the cash flows in the P&L. This means that all differences between expectations and reality are explained by changes in the portfolio.

FIGURE 10: CASH FLOW ANALYSIS

(AMOUNTS IN € 1,000S)	EXPECTED RELEASE	NEW BUSINESS	VARIANCE	TOTAL	P&L
PREMIUM INCOME	9,000	1,080	0	10,080	10,080
SURRENDER OUTGO	- 1,277	-63	459	-881	-881
DEATH OUTGO	- 128	-14	32	-110	-110
MATURITY OUTGO	0	0	0	0	0
RENEWAL COMMISSION	- 180	-22	0	-202	-202
INITIAL COMMISSION	0	-432	0	-432	-432
MAINTENANCE EXPENSES	- 292	-29	-3	-324	-350

Research on the lapse, mortality, and expense assumptions led to *operating assumption changes* for the BEL.

Finally, best estimate assumptions are reviewed for possible changes. Research on the lapse, mortality, and expense assumptions led to *operating assumption changes* for the BEL. In addition, the yield curve changed from EoY 2008 to EoY 2009 which led to an *economic assumption change*. These effects are calculated by projecting the EoY 2009 portfolio and changing the assumptions in a particular order. For our example we chose the following order:

1. Decease of mortality rates
2. Decrease of lapse rates
3. Increase of maintenance expenses per policy
4. New yield curve

FIGURE 11: BEST ESTIMATE ASSUMPTIONS

(AMOUNTS IN € 1,000S)	TP	RA	RM
CHANGE IN OPERATING ASSUMPTIONS	147	3	
• MORTALITY RATES	-152		
• LAPSE RATES	-60		
• EXPENSES	389		
CHANGE IN ECONOMIC ASSUMPTIONS	203	19	
• YIELD CURVE	203		
TP EOY 2009	16,975	526	730

The total analysis of change of the technical provision for 2009 will be as shown in Figure 12.

FIGURE 12: CLOSING TP EOY 2009

(AMOUNTS IN € 1000)	TP	RA	RM
A. OPENING TP BOY 2009	9,062	462	
B. OPENING ADJUSTMENTS	0	0	
C. ADJUSTED OPENING TP BOY 2009	9,062	462	
D. EXPECTED RETURN FOR THE PERIOD	459		
E. EXPECTED RELEASE OF CASH FLOWS/MARGINS CAPTURED IN THE TP	7,122	-11	
F. NEW BUSINESS	-243	42	730
G. OPERATING EXPERIENCE VARIANCE	222	11	
H. CHANGE IN OPERATING ASSUMPTIONS	147	3	
I. OTHER OPERATING VARIANCES			
J. ECONOMIC VARIANCES	2		
K. CHANGE IN ECONOMIC ASSUMPTIONS	203	19	
L. CLOSING ADJUSTMENTS			
M. CLOSING TP EOY 2009	16,975	526	730

4.3 Statement of comprehensive income

As stated in Section 4.1, the gross profit of the company will be a gain of €620K under IFRS 4 Phase II. Using the AoC of the TP of Section 4.2 and the profit and loss account of Section 4.1 we can set up the statement of comprehensive income shown in Figure 13.

The gross profit of the company will be a gain of €620K under IFRS 4 Phase II.

FIGURE 13: STATEMENT OF COMPREHENSIVE INCOME

(AMOUNTS IN € 1,000S)	2009
INVESTMENT INCOME	1,402
EXPECTED RETURN FOR THE PERIOD	-459
ECONOMIC VARIANCES	-2
CHANGE IN ECONOMIC ASSUMPTIONS	-203
INTEREST MARGIN	737
(AMOUNTS IN € 1,000S)	**2009**
CREATION OF TP FOR NEW CONTRACT	-529
• BEST ESTIMATE LIABILITY	243
• RISK ADJUSTMENT	-42
• RESIDUAL MARGIN	-730
CASH FLOWS IN PERIOD DUE TO NEW CONTRACT	521
NON-INCREMENTAL ACQUISITION COSTS	-180
GAINS AND LOSSES AT INITIAL RECOGNITION	-188
(AMOUNTS IN € 1,000S)	**2009**
VARIANCES ON MORTALITY	27
• DIFFERENCE IN TP	-5
• DIFFERENCE IN CASH FLOWS	32
VARIANCES ON SURRENDER	238
• DIFFERENCE IN TP	-217
• DIFFERENCE IN CASH FLOWS	456
VARIANCES ON EXPENSES	
• DIFFERENCE IN CASH FLOWS	-25
EXPERIENCE ADJUSTMENTS	240
(AMOUNTS IN € 1,000S)	**2009**
CHANGE IN OPERATING ASSUMPTIONS	-147
• MORTALITY RATES	152
• LAPSE RATES	60
• EXPENSES	-389
CHANGES IN ESTIMATES	-147
(AMOUNTS IN € 1,000S)	**2009**
CHANGE IN RISK ADJUSTMENT	-22
RELEASE OF RESIDUAL MARGIN	0
UNDERWRITING MARGIN (EXCLUDING NEW BUSINESS)	-22
GROSS PROFIT	620

5 WHAT ARE THE PRACTICAL IMPLICATIONS?

5.1 Model requirements

For the calculation of the TP a projection model is needed. To be able to analyse the change of the TP the following features must be available in the model:

- The ability to set assumptions such as mortality, lapse, etc., to zero for a predefined period of the projection
- The TP can be determined at the point of a lapse or death or other claim
- The cash flows of a specific period in the projection can be extracted from the model

5.2 Data requirements

Before analysing the change of the TP, it should be checked that the differences between the insurance contract data at the beginning and end of the period can be totally explained by the lapses, surrenders, mortality, and other changes.

For the AoC of the TP, insurance contract data is needed at the beginning and the end of the period. To determine the experience variance the insurance contract data also has to be available just before and immediately after a change for change that occurred during the reporting period. Before analysing the change of the TP, it should be checked that the differences between the insurance contract data at the beginning and end of the period can be totally explained by the lapses, surrenders, mortality, and other changes. In this way any inconsistencies in the analysis will be due to differences between the model and reality and will not be a result of inconsistent data.

For the statement of comprehensive income the cash flows of the reporting period have to be available on a detailed level. Ideally cash flows are specified on the same level as the level of input for the projection model. For example, if the projection model calculates the TP on a policy-by-policy basis, then the cash flows should be available on that same policy-by-policy level. In this way a comparison can be made between expected and actual cash flows and the differences can be allocated to the different changes in insurance contracts. If cash flows are only available on an aggregate level a less sophisticated method has to be used to allocate differences in cash flows to the different causes.

To determine the best estimate operational assumptions, historical data has to be analysed, and should therefore be available at least once every year.

5.3 Order of calculation

A company has to define not only the order of the calculation of the different items in the AoC, but also the order of the different calculations within a reporting item.

The actual order of calculation is not necessarily equal to the order of the items shown in the AoC. A company has to define not only the order of the calculation of the different items in the AoC, but also the order of the different calculations within a reporting item. For example, the order of analysing changes in insurance contracts can have an impact on the attribution of change to each assumption. First calculating the effect of mortality and then the effect of lapse will give a different result than the other way around.

In defining the order of calculation of the different items in the AoC there should be consistency between the AoC of assets and the AoC of liabilities. Where, for example, in the AoC of the liabilities the experience variance is the most important item, the economic variance is more important for the AoC of the assets. Somehow these conflicting interests have to be met by defining an order of calculation that is acceptable for both parties.

5.4 Reporting cycle

Up until now a lot of insurance companies analyse their embedded value from the beginning of the year until the reporting date. A report on Q1 includes the results of Q1 only whereas a report on Q2 includes the results from the beginning of the year through the end of June.

In the AoC of the TP the experience variance is determined by calculating the effect of changes in insurance contracts on the valuation date. Using a smaller reporting period has the advantage that

there will be little difference between the actual date of the change and the calculation date of the change. This argues for a reporting period of one month and actually closing every month, meaning that the result of Q1 will be equal to the sum of the results of January, February, and March.

5.5 Performance indicators

The new statement of comprehensive income will lead to a change in key performance indicators for insurance companies. Where a lot of insurance companies currently still use premium income as a performance indicator, under IFRS 4 Phase II key performance indicators may change to such items as:

Where a lot of insurance companies currently still use premium income as a performance indicator, under IFRS 4 Phase II key performance indicators may change.

- The gains and losses at initial recognition and the addition of residual margin, giving information about the added value of new business.
- The experience adjustments that show the quality of the model and the assumptions used for the calculation of the TP. There should also be a relation between the changes in estimates and the experience adjustments. In our example, the actual number of lapses was less than the expectation, which led to a decrease in the lapse assumptions.
- The underwriting margin, showing the release of the residual margin being the amortised profit on new business written in the past.

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