

Implementation of the Liability Adequacy Test in the Czech Republic

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This paper summarises the methodology for the Czech liability adequacy test, as introduced in a Czech Society of Actuaries' Guidance Note in 2003, and the subsequent discussions within the Czech Society of Actuaries in the period between April and June 2005. Thanks must go to the active participants of the working group, who enabled both the introduction of the test and the compilation of this paper.

Introduction

Technical Note No. 3 entitled "The life assurance liability adequacy test" (LAT) was prepared by the working group of the Czech Society of Actuaries in 2003 and adopted by the Society's Committee on 22 September 2003.¹

The concept of the LAT is comparison of the carrying amount of technical provisions with their "*fair value*". The term "*fair value*" is intentionally in italics, as there is still no well-established, recognised method of calculation ready for implementation. In these circumstances, we studied the available fair value oriented insurance accounting standards and decided to base the guidance note on the South African standard PGN104, which we found to be understandable and ready for immediate use.

Some basic rules of the Czech LAT

The aim is to introduce principles for determining provisions, on a prudential basis taking into account the financial position of insurance companies, the premiums referred to in the insurance contracts and the anticipated parameters that affect the liabilities arising from the insurance contracts, in particular interest rates, expenses and mortality rates.

The liability adequacy test is performed using discounted projected cash flows ("DCF"). Cash flows comprise primarily written premiums, claims including surrender and administrative expenses and acquisition and investment expenses. The return on assets and changes in provisions are not included in the calculation.

Discounting is carried out using a risk-free interest rates curve, applicable as at the valuation date.

¹ IFRS4 standard, under which a liability adequacy test is required, was adopted on 31 March 2004. In addition, a draft standard was published after Technical note No.3 of the Czech Society of Actuaries was basically completed.

The minimum value of liabilities should be calculated for individual product groups based on estimates of the future development of entry parameters, adjusted by margins for adverse development.

Experience with implementation

The discussions of the working group in 2005 were based on experience of implementing the technical note at the end of 2003 and 2004. This document is intended to summarise the working group's current interpretation of the Technical Note based on that experience and the developments in international reporting since the date it was issued. The aim of the Technical Note is to bring the methodology into line with the calculation of fair value of liabilities.²

Discounting cash flows

The Technical Note prescribes that cash flows are discounted using a risk-free interest rates curve (RFR) decreased by a margin (recommended 0.25 %).

If no explicit margins are used, adjustment of the discount rate using a margin is a simplified way of determining the value of embedded derivatives. If a product does not contain any embedded derivatives, the margin applied to the RFR can be lower. Conversely, a margin higher than the recommended margin can be used in respect of products that contain embedded derivatives. If the value of embedded derivatives is fully valued, for example using a stochastic model and the model is complete, i.e. it allows for the uncertainty relating to all parameters, no margin need be applied to the RFR.

It is advisable to gradually implement stochastic models, which represents a further step necessary to approximate the actual fair value. As a first step, these stochastic models can be used to calibrate the margin applied to the RFR.

Profit shares

Cash flows in addition to the “guaranteed” benefits and expenses include future profit shares (“bonuses”). The assumptions used in projecting future bonuses, in particular the interest rate curve, and the rules applied when calculating them are important for determining the value of future bonuses.

Interest rate curve for projecting bonuses

The return on assets at the RFR level (with or without MVM adjustments) is used to project future bonuses. The invested assets do not influence the projection, except when assets are not revalued at fair value (see below).

Rules for bonus allocation

Minimum bonuses in the cash flow model correspond to contractual, legal or constructive obligations. In simple terms, a constructive obligation means an amount

² The most significant events in international reporting since the issue of the Technical Note have been the issue of IFRS4 and the publishing of draft IAA standards, of which Liability adequacy testing and Current estimates are primarily relevant.

that an insurance company is obliged to allocate or as the economical losses incurred for existing portfolio would be higher than allocated bonuses.³

Higher bonuses are used by an actuary within the liability adequacy test if the company management anticipates a future allocation of bonuses in excess of contractual, legal or constructive obligations.

In both cases the method must be used consistently throughout the year, otherwise there must be appropriate supporting evidence for any change.

Assumptions

For the purpose of determining the assumptions, it is recommended to follow the draft IASP “Current estimates”.

The term “best estimate of assumptions” used in the Czech Society of Actuaries’ Technical Note corresponds with the term “Current estimates” in the draft IASPs.

Expenses

Investment expenses

Investment expenses are included in the cash flow model in the amount necessary to reach an RFR. If the appropriate amount cannot be separated from investment expenses, all investment expenses that include such an amount should be included.

Inclusion of overheads

Even though a test containing only directly assignable expenses would comply with the minimum requirements of IFRS4, the working group recommends that all expenses are included in the test. This procedure eliminates the arbitrary impact of cost re-allocation on the result of the test.

Margins for adverse development

Generally, the possibilities for determining margins are as follows:

- Calibration to zero profit upon contract conclusion (primary market)
- Calibration to transfers of portfolios or reinsurance (secondary market)
- Arbitrary decision

Major problems have been identified in relation to the first and second methods. Therefore, though theoretically incorrect, the use of arbitrary determined assumptions may still be considered as the preferred option.

Accounting mismatch

Effect of asset valuation on bonus projection

The fair value of liabilities arising from insurance contracts (the minimum value of liabilities under Technical Note No. 3) contains future bonuses

1. arising from the RFR curve,

³ For the definition of Constructive obligation see IAS37. More information can also be found in IASP LAT.

2. arising from the future realisation of valuation differences recorded in equity (may also arise from valuation differences revalued to the income statement of those companies, which for profit sharing purposes, use a base other than the accounting profit – more specifically described as “timing differences” in the IASP LAT),
3. arising from increased revenue from securities that are not revalued, whose current market value is higher than the book value.

Effect of asset valuation on the test result treatment

If the method for valuing the assets was not considered, an insurance company would create an additional provision amounting to the minimum value of liabilities arising from insurance contracts reduced by the provisions recorded (see the Technical Note, paragraphs 2.2 and 2.3). In some cases, however, adhering to the above procedure would result in an accounting mismatch in the valuation of assets and liabilities, which would impair the true and fair view.

An actuary may use his/her judgement (see the Technical Note, paragraph 2.6) to come to the following conclusions. The additional provisions created due to the negative result of the LAT can be adjusted by the difference between the market and the book value of the invested assets, if part of this placement is not revalued at fair value (neither through the income statement nor through equity). The additional provision recorded would therefore be lower by this adjustment than if the asset valuation was not considered.

If some assets are revalued at fair value only through equity, it would be advisable to record the additional provisions created due to the negative result of the LAT to equity, up to the amount of the corresponding valuation differences. As the working group is not aware of any procedures in the Czech Accounting Standards that would enable this approach to be adopted, the creation of an additional provision cannot be adjusted by the valuation differences recorded to equity. Accordingly, the additional provision recorded does not consider any valuation differences recorded in equity.

Conclusion

The purpose of this summary is to share the conclusions that the working group of the Czech Society of Actuaries arrived at in 2005. Although the main objective of the proposed procedures is to achieve fair valuation of insurance liabilities, some major issues are yet to be resolved.

The most significant issue is to replace more-or-less arbitrarily selected margins with stochastic modelling and calibration (either of margins or of the resulting model) to the market. This is a theoretical problem and the solution may depend on international developments.

Another issue stems from the accounting model of asset valuation. When assets are not held at amortised costs (IAS39 held-to-maturity portfolio) and fair value of assets would be higher than amortised costs, the additional LAT-provision might be reduced by the difference between amortised costs and fair value of the corresponding assets. This is possible under current legislation in the Czech Republic. A more complicated situation arises when some of the assets are revalued through equity, whereas provisions are always created through the income statement.

The final issue relating to Czech insurance accounting relates to the liability adequacy test only in part. When interest rates are low and additional provisions are created, assets and liabilities are revalued at fair value (even though in some cases assets are revalued through equity and liabilities through the income statement, see the above paragraph), as a result of which such no significant accounting mismatch arises. If, however, interest rates increased, liabilities would continue to be calculated using traditional formulae independent of market interest rates, whereas the book value of assets would decrease. In conclusion, the liability adequacy test would help remedy the accounting mismatch only when interest rates are low.

Attachment: Czech Society of Actuaries' Technical note No. 3: Liability Adequacy Test for Life Insurance

Czech Society of Actuaries, Technical Note No. 3

Liability adequacy test for Life insurance

Legislation:

- Act No. 363 / 1999 Coll. on Insurance,
- Act No. 353 / 2001 Coll., amending the Accounting Act
- Decree No. 502/2002 Coll. for accounting units – insurance companies

Issue No. 1 approved on 22 September 2003

1. Introduction

1.1. This Technical Note is intended to provide responsible actuaries with a procedure for determining the overall level of life assurance provisions. The aim is to introduce principles for determining provisions taking into account the financial position of insurance companies on a prudential basis, the premiums referred to in the insurance contracts and the anticipated parameters that affect the liabilities arising from the insurance contracts, in particular interest rates, expenses and mortality rates.

1.2. This Technical Note shall be governed by the same legislation as Technical Note No. 2. Pursuant to Section 27 (1)(c) of the Act on Accounting, technical provisions of accounting units carrying on insurance or reinsurance activities under special statutory provisions shall be measured at fair value. The measurement of technical provisions at fair value is defined in Section 28 of Decree No. 502/2002 Coll. Section 18 (1) of the Act on Insurance No. 363 /1999 Coll. specifies that the same statistical assumptions and interest rate should be used for the calculation of the life assurance provision as are used for the calculation of premium rates. As a result of this statutory provision, Section 27 (2)(c) of the Act on Accounting should be applied. Accordingly, measurement according to the special statutory provision referred to under (c) shall be applied.

1.3. The Technical Note has been designed to be consistent with the draft “Loss recognition test” for the first stage of an IFRS project for insurance contracts.

1.4. In addition, the note deals with a decrease in interest rates, which, in many instances, results in a deficiency in the provisions calculated based on the original assumptions. In compliance with Section 28(2) of Decree No. 502/2002 Coll. a decision should be made to increase the technical provisions to ensure that an insurance company is able to meet its obligations arising from insurance contracts.

2. General principles

2.1. Life assurance provisions are calculated in accordance with the provisions of Section 18 (1) of Act No. 363 /1999 Coll., on Insurance, which specifies that the same statistical assumptions and interest rate should be used for the calculation of the life assurance

provision as are used for the calculation of premium rates.

2.2. A responsible actuary carries out the life assurance liability adequacy test (“the liability adequacy test”) in order to assess the adequacy of the aggregate of the life assurance provisions, provision for unearned premiums, life assurance provision where the investment risk is borne by the policyholder, provision for outstanding claims incurred and reported by policyholders but not settled (RBNS) and provision for bonuses and rebates (the aggregate of the above provisions is subsequently referred to as the “life assurance provisions”). The minimum value of the liabilities is calculated within the liability adequacy test and compared with the life assurance provision reduced by any unamortized acquisition costs or intangible assets recorded as a result of a business combination or portfolio transfer. The provisions should be considered insufficient where this amount exceeds the amount of life assurance provisions reduced by any unamortized acquisition costs and intangible assets.

2.3. Where the liability adequacy test results in a deficiency of life assurance provisions, the responsible actuary should recommend that the insurance company files an application to the Office for State Supervision in Insurance and Pension Supplementary Insurance for approval to create other technical provisions in accordance with Section 13 (4) of Act No. 363/1999 Coll., on Insurance (further referred to as an “additional provision”). The provision should be recorded in the amount of the difference between the life assurance provision (reduced by any unamortized acquisition costs and intangible assets) and the minimum value of liabilities calculated in the liability adequacy test.

2.4. Where the liability adequacy test results in an adequacy of life assurance provisions, the additional provision shall amount to zero in respect of life assurance. The life assurance provisions should remain unchanged.

2.5. The liability adequacy test is carried out as at the date of preparation of the financial statements and as at any other date based on the needs of a particular insurance company. It is recommended that a preliminary calculation be made before the end of the accounting period in order to obtain, if necessary, consent for the creation of additional provision (called provision for adverse development in calculation assumption) from the Office for State Supervision in Insurance and Pension Supplementary Insurance.

2.6. This Technical Note is not intended to provide comprehensive instructions for carrying out liability adequacy tests. Having considered all circumstances, the responsible actuary should propose an appropriate model and entry parameters based on his/her best judgement (“actuarial judgement”).

2.7. The responsible actuary should add his signature to the liability adequacy test, classification of the insurance portfolio into groups, the assumptions used (the best estimate of assumptions and margins for adverse development should be specified separately) and the method in which they were derived.

3. Testing methodology

3.1. The liability adequacy test should be carried out using discounted projected cash

flows (“DCF”). Cash flows should comprise primarily written premiums, claims including surrender and administrative expenses and acquisition and investment costs. The return on assets and changes in provisions are not included in the calculation.

3.2. Discounting is carried out using a risk-free curve of interest rates applicable as at the valuation date.

3.3. The minimum value of liabilities must be calculated based on assumptions consistent with the valuation of financial placement.

3.4. An insurance portfolio should be broken down into groups, for example, according to the nature of the products, the product negotiation and management, according to the insurance classes under the Insurance Act, the product generation, etc. For these groups, the adequacy of the provisions should be considered separately.

3.5. The minimum value of liabilities should be calculated for the individual groups using best estimates of assumptions for the future development of entry parameters adjusted by margins for adverse development.

3.6. Assumptions may be classified either as economic assumptions or as assumptions specific for a particular insurance product or insurance company (the “insurance assumptions”).

3.7. The economic assumptions should be used consistently with market valuation, if available.

3.8. The assumptions should be best estimates based on the immediately preceding experience of an insurance company and should be adjusted by anticipated future changes. The assumptions may differ for various parts of an insurance portfolio according to the nature of the products and the method of product distribution (based on the nature of an insurance portfolio, the assumptions should be determined for the groups under paragraph 3.4. or for their sub-groups).

3.9. If there are no internal analyses to determine best estimates for the assumptions, other available information useable for a given insurance portfolio can be used. However, the assumptions adopted must always be sufficiently prudent.

3.10. The margins for adverse development means an adjustment of the entry parameters resulting in an increase in the minimum value of liabilities. Inclusion of the margins in the calculation of the minimum level of liabilities should reflect the market value of a risk associated with the future developments during the period over which an insurance company guarantees the conditions of an insurance contract.

3.11. The recommended margins to be applied to the best estimates of assumptions are stated in paragraph 3.16. Taking into account the relevant circumstances, the responsible actuary of a company should decide which assumptions and margins will be used.

3.12. Claims used in the calculation of the minimum value of liabilities comprise profit

participations, both allocated and anticipated. Profit participation about which a decision was taken in the past should be included in full. Future profit participations should be included in accordance with the insurance conditions, internal guidelines of the insurance company, policyholders' reasonable expectations and other parameters applied.

3.13. Administrative expenses used in the calculation of the minimum value of liabilities are based on the administrative expenses actually incurred. The anticipated increase in expenses as a result of cost inflation, which must be consistent with other interest rate assumptions and the anticipated increase in expenses, should also be considered.

3.14. The probability of cancellation of an insurance contract and an algorithm for calculating the surrender value should be included in the calculation of the minimum value of liabilities.

3.15. The cost of derivatives (options and guarantees) embedded in insurance contracts should be considered in the calculation of the minimum value of liabilities.

3.16. The recommended minimum margins are as follows:

Risks	Minimum margin in % of the underlying assumption
Mortality rate	10 %
Disability and sickness rate	10 %
Cancellation of insurance contracts where no surrender is paid	25 %
Cancellation of insurance contracts where surrender is paid	10 %
Costs	10 %
Cost inflation	10 %
Accrued interest (to be applied for discounting cash flows and projected future benefits, primarily profit shares)	Reduction by 0.25 percent

3.17. A change in the classification of an insurance portfolio into groups and a significant change in the model or a change in the approach to determining the entry parameters should be considered as a change in the accounting method.