

Executive Summary¹

The changes proposed in the Swedish Insurance Business Act² are intended to strengthen policyholder protection by increasing transparency and enhancing incentives for insurance undertakings to identify, estimate and mitigate their risks. Policyholder protection will be augmented by regulation aiming to ensure that the risks involved in insurance undertakings are more clearly reflected in the demands made of these enterprises. The disclosure of a realistic financial position will also improve the platform for supervision and enhance market discipline.

The proposal conforms to international developments in the field, most importantly with the ongoing “Solvency II” project, a corresponding reform of regulation in the EU. This notwithstanding, changes are required in the regulation of undertakings at national level, and these are also being made – in parallel with the Solvency II project – in other Member States. This proposal is compatible with the main principles within the Solvency II project as well as current EC directives and should be regarded as a natural transition from the current regulation until the new EC directives can be implemented in Sweden.

The core of the proposal consists of three interdependent components which cannot be viewed in isolation:

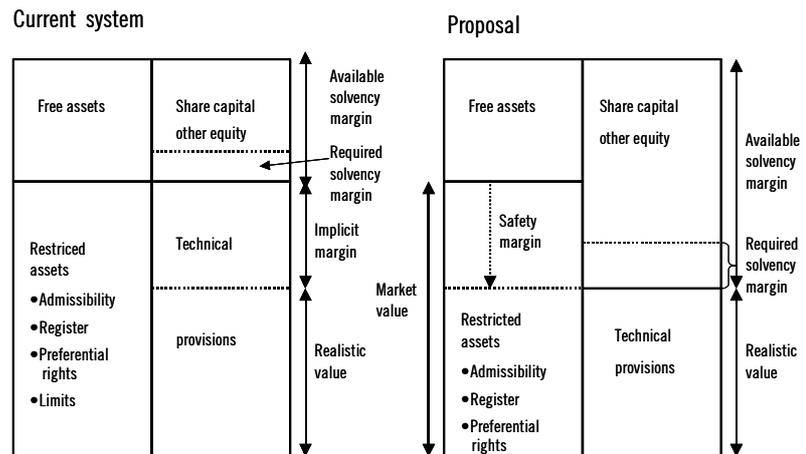
- realistic valuation of insurance liabilities (technical provisions),
- amended asset restrictions and valuation of assets covering the technical provisions³ and
- assessment of risk expressed as a safety margin.

¹ This Executive Summary contains a digest of the main proposals and arguments made by the Investment Commission in its report *Proposal for a Modernised Solvency System for Insurance Undertakings (Förslag till ett moderniserat solvenssystem för försäkringsbolag)* SOU 2003:84.

² Försäkringsrörelselagen (1982:713).

³ Asset restrictions only apply to assets covering technical provisions. These assets are identified and separated from the total assets of the undertaking through a register and pledged to policyholders through preferential rights in case of a winding up situation.

Figure 1: Overview of existing and proposed solvency systems



Realistic valuation of insurance liabilities

The cornerstone of a solvency system aiming at protecting policyholders is the valuation of liabilities as determined by policy conditions resulting in the technical provisions. These are currently systematically overvalued and do not reflect a realistic estimate of the assets required to pay future claims. Therefore, the statutory reporting does not reflect the true financial position of an insurance undertaking and undermines attempts to assess the true risks involved. This may result, among other consequences, in insufficient focus on risk control and disincentives for matching.

Technical provisions should rather be based on a realistic valuation of the insurance liabilities that is symmetrical with the valuation of assets. The aim is to enable and encourage sound risk control in the companies and to improve transparency and comparability between insurers. Sound risk control means that risks are identified and mitigated through measures such as diversification, matching and reinsurance.

The proposed principle for the valuation of insurance liabilities will involve changes for non-life, life and unit-link insurance. However, the greatest changes will take place in the area of life

insurance as the current method of using conservative assumptions when calculating the technical provisions will no longer apply.

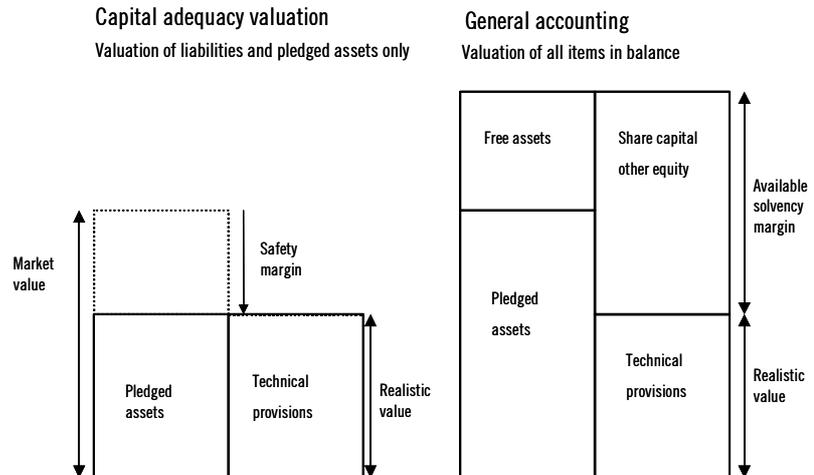
Amended asset restrictions

In the event of insolvency, the main protection to policyholders in the Swedish regulation is their preferential right linked to assets covering the technical provisions. These “pledged assets” can be viewed as a collateral security for policyholders. Policyholder protection thus requires regulation to determine admissible assets, how these are valued and the magnitude of admissible assets in relation to the insurance liabilities.

In the current asset restrictions, the financial risk of assets is considered from a static point of view. There is no restriction of financial risk as long as the value of an asset or asset class remains within the quantitative limits determined for the type of asset(s) involved. Consequently, as the security is fixed, the credit risk of policyholders against the insurer will vary with the amount of financial risk the insurer opts for within the admissible limits. These limits may even reduce awareness of risk as they may erroneously be perceived as defining acceptable risk levels irrespective of the real financial risk.

The proposal suggests that financial risk be considered on the basis of the risk characteristics of each individual asset and expressed in the context of solvency rather than as quantitative limits relating to asset restrictions. This is achieved by deducting a risk-sensitive safety margin from the market value of the assets. This will not impact on external accounting as the safety margin will only be considered in a capital adequacy test. In general accounting, assets will be listed at market value and the safety margin disclosed as the difference between pledged assets and technical provisions.

Figure 2: Illustration of the differences between a valuation for solvency and general accounting purposes



This solution implies that the current quantitative asset restrictions can be relaxed. The increased freedom offers the insurance undertakings better scope for capital management reflecting the characteristics of their insurance liabilities.

In addition, a greater variety of assets may be admitted to cover liabilities. Regarding admissible assets, not only the improved risk management encouraged by the safety margin is considered but also the need for disclosure of the pledged assets. Despite this new freedom, however, some new restrictions will be required for the sake of policyholder protection.

Safety margin

The safety margin will determine the amount of assets an insurance undertaking is required to pledge to cover its technical provisions. The margin should allow for both insurance and financial risks in order to reflect the risk for policyholders of the undertaking being unable to fulfil its insurance liabilities. Any increase in risk should trigger the requirement to pledge further assets. Reduction of this

risk by measures such as diversification, reinsurance or matching should lead to a reduction of these requirements.

The proposal means, therefore, that within the context of solvency the current deliberate overvaluation of liabilities is to be replaced by a prudential valuation of the assets pledged. Instead of an implicit margin in the technical provisions, an explicit safety margin in the assets covering the liabilities will be achieved; a margin that moreover depends both on the risks associated with the portfolios of liabilities and assets. This will increase transparency for all stakeholders in an insurance undertaking as well as providing the companies with financial incentives to govern these risks themselves in the management of their asset and policy portfolios.

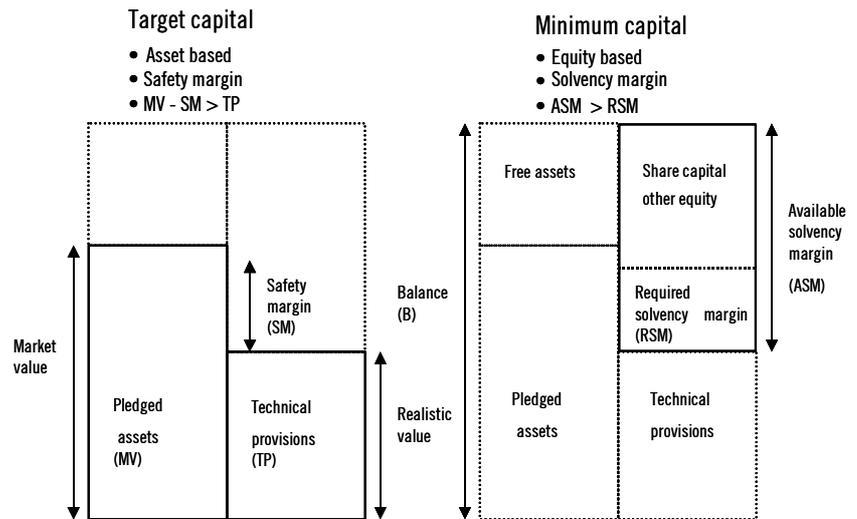
The safety margin is to be calculated on the basis of the insurance and financial risks in insurance liabilities and pledged assets. The proposal presents a framework for how a safety margin could be designed along with a brief description of the way the risks in an insurance enterprise could be estimated and quantified. It is proposed that the Swedish Financial Supervisory Authority (Finansinspektionen) should be authorised to devise a more detailed method for the calculation of the safety margin.

In the discussion relating to the safety margin, the emphasis has been placed on creating incentives for insurance undertakings to govern their risks rather than on precise risk quantification. From a regulatory point of view, it is more important to focus on desirable behaviour rather than on complex risk measurement. In addition to this standpoint, particular consideration has been paid to the significant role played by insurance undertakings in financial markets and the impact that this regulation may have on the ways in which the markets function.

Supervision

The proposals imply a shift from a static solvency system to a more proactive one. This leads to changes in supervision toward more individual and qualitative assessments of the way in which specific undertakings manage risk and of their governance.

Figure 3: Asset based and equity based intervention levels



The safety margin in effect defines an asset-based capital adequacy level as a complement to the prevailing equity-based requirement of a solvency margin. The former can be viewed as a target capital and the latter as a minimum capital. The target capital provides an earlier level at which formal intervention may take place to supplement the minimum requirement.

This proposal fits in well with the general trends concerning supervision in the future, as described, for instance, in the Enquiry into the role and resources of the Swedish Financial Supervisory Authority.⁴ Developments in the supervision of financial institutions are moving towards approaches with a qualitative and analytical focus. This applies in particular to the requirements of sound forward planning.

Other issues raised in the report

In recent years with-profit life companies' treatment of policyholder surplus has been much in focus. This issue is closely linked to the issue of their risk capital, as this capital to a very high degree corresponds to the surplus on a company's balance sheet. The

⁴ SOU 2003:22.

report offers a brief description of the problems involved and some conceivable approaches to a solution through a general review of the corporate law relating to insurance undertakings. During the spring of 2003 the Swedish Government has announced that a review of this kind is forthcoming.

In the long run, either the policyholders' funds must be kept separate from a company's risk capital or policyholders must be provided with influence and insight into the company's operations commensurate with the risk capital they have contributed. However, each life assurance undertaking should be free to opt for which of these solutions it prefers.

Other issues dealt with concern the regulations relating to external financing of insurance undertakings and a number of accounting issues.

Technical aspects of the valuation of liabilities

A realistic valuation of insurance liabilities is defined as using realistic rather than conservative assumptions including discounting future cash flows using the market interest rate for government bonds for the relevant currency and term. Assumptions should be established in a prudent manner, normally using statistical methods. The expected return on investments should normally be above the return on government bonds, and it is prudent to choose the risk-free rate of return for discounting. In discounting cash flows with a longer term than the principal payment from the longest relevant bond, a prudent margin is proposed for the reinvestment risk.

Different valuation methodologies are discussed in some depth in the proposal. The calculation should be made using an acknowledged actuarial method. This would entail a prospective valuation using the mathematical expectancy operator taking into account relevant policy data, either policy by policy (individual method) or using relevant information representing a group of policies (statistical or collective method), whichever is most relevant for the type of liabilities and type of provisions concerned. A retrospective method is not rejected if it is combined with a prospective assessment of future incomes and outlay regarding the relevant policies.

As the technical provisions are calculated using the expected value as measure, individual and statistical methods are interchangeable because the mathematical expectancy operator is additive. This is

generally *not* the case for measures intended to provide a risk-sensitive margin such as a percentile measure.

The question of the valuation of options embedded in policies is explicitly addressed. The provision should be determined on the basis of the least favourable outcome for the insurer with respect to any option a policyholder may have according to the specific policy. This is a departure from the principle of a realistic valuation, which implies that insurers should not try to estimate the probability of potential policyholder behaviour but rather presume that their actions are economically rational. Such a method is relevant from a solvency perspective but not necessarily so from a shareholder point of view.

Through the connection between solvency and accounting regulation the same valuation of liabilities will apply in both areas. Whereas the main focus has been on solvency aspects, advantages are also offered by enhanced disclosure in general accounting. The latter issue has to be addressed in the ongoing project within the accounting community. The proposal highlights certain technical obstacles in a valuation containing a risk sensitive margin, a principle proposed by IASB for the valuation of insurance contracts in general accounting.

Technical aspects of the safety margin

As already stated, the Swedish FSA is authorised to devise the precise methods for the calculation of the safety margin. Therefore, the detailed aspects of risk assessment outlined here should be regarded as no more than a discussion with illustrative examples.

The suggested design should be viewed as a standard model. Applicability and transparency is preferred to what might be regarded as more complete and precise but – at the same time – more complex risk assessment methods. The Commission is reluctant to suggest complicated risk measurements restricted to a small group of specialists. A simpler method is preferred which can be intuitively understood and interpreted by management and the supervisory authority.

Having said that, the design proposed is not easy to grasp. It should be viewed as a compromise between practical applicability and advanced risk measurement techniques that results in relatively crude measurements of risk. Still the suggestion presents a major

step forward by including a capital charge in the solvency system reflecting the spread of possible outcomes.

The method suggested for a risk-sensitive margin includes grouping risks in insurance, financial and matching risks. Certain risks are, however, excluded from the safety margin.

Operational risk is not included as this risk is not unique to insurance and indeed the extent to which it can be quantified is questionable. It could also be seen as being covered by equity rather than pledged assets. Operational risk is better taken care of through supervision and internal governance rather than through quantitative capital charges.

Liquidity risk is not explicitly considered, but is implicitly reflected through market and credit risk.

Diversifiable financial risk is not quantified but is limited through risk concentration limits in the asset restrictions. Also, the financial markets provide good opportunities for diversification, for which established practices exist.

Insurance risk

Insurance risk is divided into a diversifiable and a systematic element. The standard deviation is recommended as a risk-measure for diversifiable insurance risk as this gives incentives for diversification, reinsurance and healthy product design. The systematic insurance risk is notoriously difficult to quantify, but insurers themselves provide an estimate when deciding the insurance premium. Using this risk margin as a proxy for systematic insurance risk takes advantage of existing incentives for insurers to overvalue liabilities when premiums are decided and does not create dangerous incentives to undervalue them when the technical provisions are subsequently calculated. The margin is the positive difference between the premium, equivalent with the liabilities valued at amortised cost, and the technical provisions.

Financial risk

Financial risk is divided into market and credit risk. Market risk is considered for non-fixed-interest assets i.e. equity and property, while the risk for value fluctuations for fixed-interest assets is estimated under credit and interest rate risk.

Investments in equity or property are characterised by a short-term volatile behaviour while at the same time, on average, representing a stake in the general economy with long-term properties. These investments are generally, in the short term, riskier than fixed-interest assets as the market value is not bound by fixed payments.

Market risk can be assessed through market values or fundamental values. Methods using current or smoothed market values are regarded as being hazardously pro-cyclical for financial markets. Instead, a fundamental-value-based proxy used to amplify or reduce the magnitude of market risk is preferred. This is accomplished by linking long-term normal risk-levels for the relevant asset classes to the relation between the real interest rate and dividend yield. Assumed advantages include less disturbance of financial markets and interest-rate sensitivity. The latter feature makes it more feasible to include non-fixed-interest assets in composing a portfolio comprising long-term liabilities while further discouraging the use of these assets to cover short-term liabilities.

Different methods to assess credit risk are discussed, including factor-based methods, the use of rating agencies and the market price of credit risk as reflected by current, smoothed or acquisition-time interest-rate spreads. Though insurance business is different in product duration and systemic importance compared to banks, the factor-based capital charges for credit risk of the banking sector might be preferable in order to avoid regulatory arbitrage.

Matching risks

The financial risks, interest-rate and exchange-rate risks are classified as matching risks, as they affect both the market value of assets and technical provisions. Exposure to interest-rate risk measures the degree of timely matching between assets and liabilities. The interest and exchange rate exposure are estimated by the change in value of the net position (pledged assets less insurance liabilities) resulting

from a proportional change in the relevant market interest rate. A proportional change affords incentives for matching as well as implicitly incorporating inflation risk in the estimate. A similar approach is proposed for exchange-rate risk.

The safety margin is calculated from the different risk categories allowing for full diversification, not because they are necessarily independent but because that is how they are defined; a concession to simplicity and verifiability which means that no correlations need to be estimated or determined.

Table 1: Summary of calculations for risk factors in the safety margin

Risk type	Calculation
Diversifiable insurance risk	2.5 standard deviations for the value of the portfolio of insurance liabilities due to random deviations from what is expected in the technical provisions subject to current levels of interest rates and exchange rates and that claims from individual policies are independent.
Systematic insurance risk	An amount corresponding to an adverse systematic claims experience up to what is implicitly assumed in premiums for the existing portfolio of liabilities.
Market risk for traded equity	20 percent of current market value adjusted for the ratio between the real interest rate and the observed dividend yield for the relevant market place.
Market risk for non-marketed equity	30 percent of estimated market value adjusted for the ratio between the real interest rate and observed dividend yield for a comparable market place.
Market risk for property	30 percent of the estimated market value adjusted for the ratio between the real interest rate and the income return on current investments in property.
Credit risk	8 percent of market value for assets with credit risk, adjusted for the creditworthiness of the counter-party.
Interest- rate risk	The change in the net position between pledged assets* and technical provisions after a change in relevant interest rates of 20 percent.
Exchange rate risk	5 percent of unmatched liabilities.

*The sensitivity to interest-rate risk, i.e. modified duration, for non fixed-interest-assets is defined by the derivative as the (negative) normal risk factor divided by the yield. As an example, assume investments in listed equity with a market value of 100, a prospective real interest rate of 3% and an average dividend yield for the relevant market place of 2.5 %. The exposure to market risk is calculated as the market value times the adjusted risk factor $100 \cdot 20 \% \cdot 3 / 2.5 = 24$. The sensitivity to changes in the interest rate for equity is calculated as $20 \% / 2.5 \% \cdot (1/100) = 8 \%$. This means, that if the real interest rate changes then the exposure to market risk will change as well. An increase in the interest rate will increase the calculated market risk and vice versa. If the stress test for interest-rate risk is 20 % then the pledged assets should be sufficient relative to liabilities for a change of $20 \% \cdot 3 \% = 0.6$ percent units in the real interest rate. The interest-rate risk for equity is thereby calculated as $0.6 \cdot 8 \% \cdot 100 = 4.8$. The net effect of both the market risk and the interest-rate risk for equity will be dependent on the liabilities. If liabilities are short-term, assume modified duration equals 0, the total effect will be 24 for market risk and 4.8 for interest rate risk. If liabilities are "long" then the 4.8 will reduce the net exposure to interest rate risk but leave the 24 unchanged.