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The Swiss Solvency Test

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Just as reserving and capital requirements for U.S. life insurers are undergoing a dramatic overhaul, Swiss companies and the Swiss regulator, the Federal Office of Private Insurance (FOPI), are heavily engaged in the Swiss Solvency Test (SST) paradigm, in force since Jan. 1, 2006. A sign of the global times is that even for a seemingly stable economy, events like the crash in international equity markets of 2001 and 2002, the steady fall in bond yields, and an increased longevity, have spurred modern insurance risk management.

The SST attempts to foster better risk management practice among insurers. Before SST, life insurers determined required capital using the Solvency I standard formula: 4 percent of mathematical reserves, plus 0.1 percent of net amount at risk. This formulaic approach failed to consider a company's own risks profile and was clearly inequitable for prudent insurers. With the advent of Solvency II in the European Union (to which Switzerland does not belong), Swiss authorities took the opportunity to devise a "risk-based capital" solution which fits squarely with the second pillar of Solvency II (i.e., supervisory review of capital adequacy).

SST Modelling Approach

SST requires insurers to apply risk-based capital models that are able to capture each company's unique risk profile, complemented by scenarios or event shocks. While companies are encouraged to develop and implement their own internal models as the default approach,

a standard model has also been developed by FOPI to ensure that all companies are able to fulfil the minimum requirements.

Standard models are provided for market risks, life insurance risks, P&C risks, health insurance risks, and credit risks. All models but the credit risk model (which follows a Basel II methodology) are stochastic. Parameters are either set by the regulator or by the companies themselves.

Both company specific and predefined scenarios are important tools for supervisors in the assessment of risk management and the company's internal processes (another SST tenet.) These two elements facilitate an informed exchange between senior management, the board of directors, and insurance authorities.

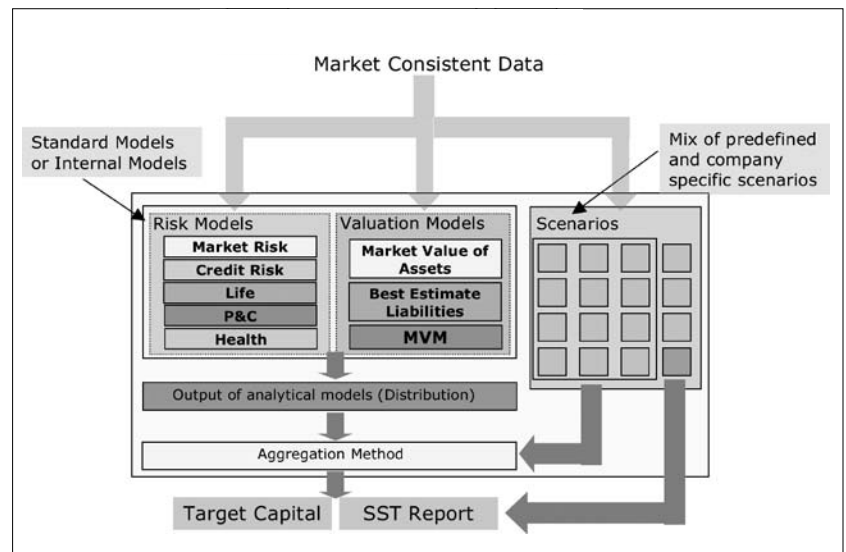


Fig.1 – Structure of SST
Source: Federal Office of Private Insurance

The results of the standard models are mixed with the evaluation of the scenarios with an aggregation method. The aggregation basically consists of determining the weighted expected value of probability distributions given the "normal" situation (captured by the standard models), and the "special" situations (captured by the scenarios). This makes the SST a hybrid stochastic—scenario model. To arrive at target capital, results of the standard



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models and evaluations of a number of scenarios are aggregated.

Transparency

The SST improves policyholder protection and enhances an insurer's risk management processes within a more transparent system. Regulators have historically passed solvency legislation to protect the policyholders, however setting strict standards for liability recognition have also carried systemic risks: companies are "rewarded" if they can beat the system by writing products that are not monitored adequately by the regulator. FOPI believes that a first prerequisite for a transparent and comparable regime is that assets and liabilities are valued in a consistent way by all market players.

Market Consistency

A basic tenet of SST is that both assets and liabilities must be market-valued. For liabilities, all policyholder guaranteed receivables and embedded options must be considered at a market value if it exists, or the value of a replicating portfolio of traded financial instruments *plus* the cost of capital for the remaining basis risk.

Risk-bearing capital consists of the difference between assets and liabilities (both taken at the market consistent value), plus the market value margin (labelled MVM in Fig. 1). This margin is approximated by the present value of future required regulatory capital for the run-off of the portfolio of assets and liabilities.

Target capital is defined as the sum of the expected shortfall of change in risk-bearing capital within one year at the 99 percent confidence level, plus the market value margin. In essence, the expected shortfall is a conditional tail expectation (CTE) measure that is robust, convenient, practical, and coherent for quantifying financial risk exposure. It has become the preferred measure whenever stochastic methods are used to set liability provisions.

Under the SST, an insurer's capital adequacy is defined if its target capital is less than its risk bearing capital. (Fig. 2)

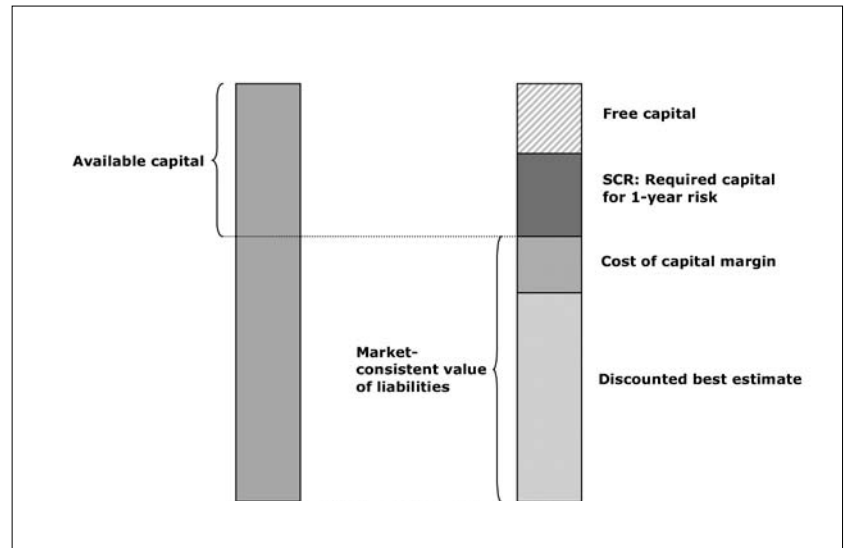


Fig.2 – The Economic Balance Sheet
Source: Federal Office of Private Insurance

Compliance: the SST Report

The SST Report summarizes an insurer's risk position on an annual basis. It has a prescribed minimum content, incorporating relevant information required to review the target capital and available capital calculation, and must be signed by the CEO. This needs to be supplemented by a risk management report that covers aspects such as the risk strategy (including objectives and appetite), risk management procedures, and an allocation of responsibility and accountability.

Interestingly, the onus is not on the chief actuary to comply with the solvency requirements. Rather, Senior Management and the Board of Directors are responsible for the adherence to SST principles.

Convergence of Global Actuarial Thinking and Insurance Supervision

Risk-based solvency requirements have a long history in a number of countries. To provide incentives for risk and capital management and to transfer (back) the responsibility to Senior Management and the Board of Directors, it is critical that the approach to supervision is principles-based.

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In 2004, the International Association of Actuaries (IAA) published back in 2004 a paper with recommendations on how to implement a risk-based regulatory framework. Many supervisors have adopted a few recommendations. A case in point is that the SST incorporated the following:

- The expected shortfall as a risk measure;
- The total balance sheet approach;
- The one-year time horizon; and
- The explicit risk margin.

In addition, the International Association of Insurance Supervisors (IAIS) guidance papers on solvency assessment indicate the global trend toward principles-based approaches:

- Structure of regulatory capital requirements;

- ERM for capital adequacy and solvency purposes; and
- Use of internal models for risk and capital management

All these are prime examples of convergence of thinking of the global actuarial profession and insurance regulation activity.

Expanded Opportunities for Chartered Enterprise Risk Analysts (CERAs)

An interesting item for the actuarial profession is the emphasis on an ERM approach that is implied in the SST Report. This translates into attractive career development opportunities for CERAs and other risk management professionals. □



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