Lecture

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Chapter: Unit 3 Chapter 2

Chapter Name: SCR and MCR (Solvency capital requirements and Minimum capital requirement)

Today's Agenda

1. Solvency II
    1. History

2. Approaches
    1. Standardized Approach
    2. Internal Models Approach
    3. Tests

1 Solvency II

In the United States and the European Union, Solvency II establishes capital requirements for operational, investment, and underwriting risks of insurance companies. Solvency II requires capital buffers above the minimum capital requirement (MCR), called the solvency capital requirement (SCR).

1.1 History

- **Minimum capital requirements** also exist for **insurance companies** in many nations. Though international standards do not yet exist, sophisticated approaches have been implemented in the United States and the European Union.
- In the mid-1990s, the U.S.-based National Association of Insurance Commissioners (NAIC) promulgated a capital standard that anticipated some elements of Basel II. In addition to capital requirements covering the risks associated with liabilities, capital is required for risky assets at levels that depend on ratings assigned by the NAIC to each asset. Insurance regulation is at the state level in the United States, but most states have implemented these requirements.
- In Europe, regulation of insurance companies is done by the European Union's (EU) European Insurance and Occupational Pensions Authority (EIOPA). The first capital regulations at the EU level were known colloquially as Solvency I, which has recently been replaced by Solvency II.
- Solvency II will consider **operational and investment risks** in addition to **underwriting risks**. While Solvency II was expected to be implemented in 2013, the date has been postponed. **Solvency II has three pillars, analogous to Basel II.**

1.1 History

Pillar 1 specifies a **solvency capital requirement (SCR).** The SCR may be calculated using the standardized approach or the internal models approach . **Repercussions for breaching the SCR are less severe** than if the firm breaches a minimum capital requirement (MCR). If the SCR falls below the required level, the insurance company will likely be **required to submit a plan for restoring the capital** to the required amount. Specific measures, determined by regulators, may be required.

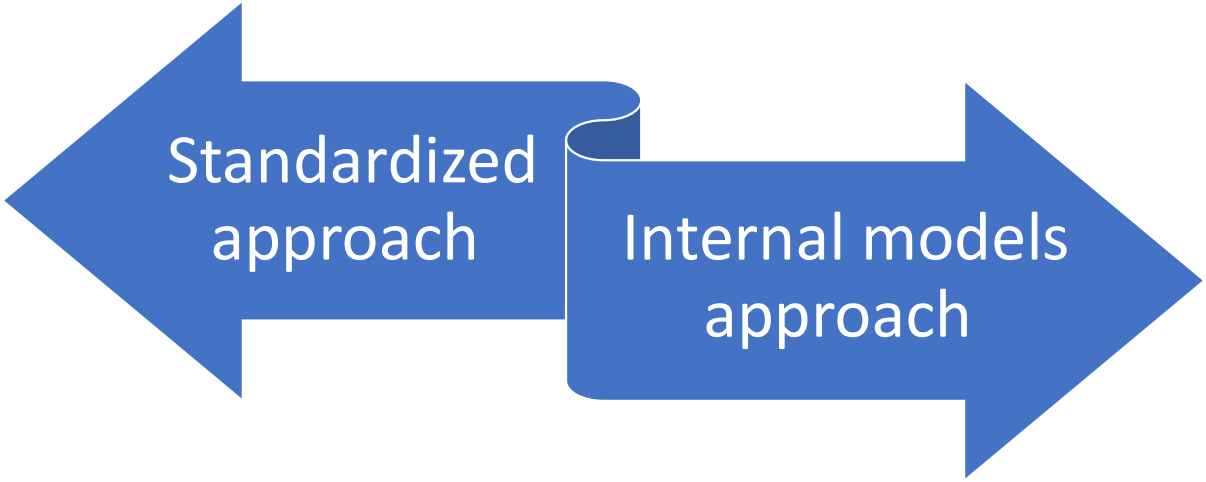
Pillar 1 also specifies a **minimum capital requirement (MCR),** which is an absolute minimum of capital. There are at least two methods for calculating the MCR under consideration.

First, MCR may be set as a percentage of the SCR.
A second possibility is to calculate MCR the same way as SCR, but with a lower confidence level.

The repercussions for breaching the MCR are severe. If a firms capital falls below the MCR, regulators will **likely prohibit the company from taking new business**. Regulators can also force the insurance company into liquidation and transfer the company's insurance policies to another firm.

2 Approaches

The two approaches an insurance firm can use to calculate the SCR under Solvency II are:



2.1 Standardized Approach

- Analogous to Basel II, the standardized approach to calculating SCR under Solvency II is intended for less sophisticated insurance firms that cannot or do not want to develop their own firm-specific risk measurement model.
- It is intended to capture the risk profile of the average firm and is more cost efficient for smaller firms with less fully developed risk management functions.

2.2 Internal Models Approach

This approach is similar to the IRB approach under Pillar 1 of Basel II.
A VaR is calculated with a **one-year time horizon and a 99.5% confidence level**. There is a capital charge for the following three types of risk:

1. **Underwriting risk**: divided into risks arising from life insurance, non-life insurance (such as property and casualty insurance), and health insurance.
2. **Investment risk**: divided into market risk and credit risk.
3. **Operational risk**.

Regulators have implemented quantitative impact studies (QISs) to examine whether capital is sufficient to weather significant market events. For example, QISs have considered large declines (i.e., 32%) in global stock markets, large declines (20%) in real estate prices, large increases (10%) or decreases (25%) in mortality rates, and so on.

2.3 Tests

Internal models developed by insurance companies must satisfy the following three tests:

1. Statistical quality test:
   This tests the **quality of the data** and the methodology the firm uses to calculate VaR.

2 . Calibration test:
   This tests whether **risks are measured in agreement with an industry-wide SCR** standard and target criteria set by regulators.

3 . Use test:
   This test determines if the **model is relevant** and **used by risk managers** in business decision-making.