

**SOME PROBLEMS
OF INSURANCE REGULATION
AND
MATHEMATICAL RISK THEORY**

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ABSTRACT

In insurance two major types of cycles are known:

- (a) regular many years long up- and down-swings referred to as underwriting cycles and
- (b) irregular short-range fluctuations.

Both are closely related to the problem of insurer's solvency which is an important problem of regulation and management.

Key rationale of the underwriting cycles is migration of insureds triggered by the insurers' price competition while the short-range fluctuations are due to unpredictable fluctuations in economic surroundings.

The competition-originated cycles were modeled in the framework of a Lundberg's-type multi-period model of risk.

Short-range fluctuations were modeled under diverse nature's scenarios in the framework of

- (i) diffusion multi-period model of risk and
- (ii) Lundberg's-type multi-period model of risk.

In this talk an overview of these results will be presented.