E. A. Pchelintsev, S. M. Pergamenshchikov (TSU, Tomsk, Russia). **On the ruin probability for the general Sparre Andersen insurance model with investments**[1].

The paper studies the ruin probability of an insurance company depending on its initial capital $u > 0$. The Sparre Andersen model is used as a basic insurance model, in which the evolution of the company's capital is $X_t^u = u - \sum_{k=1}^{N_t} \xi_k$, where $(\xi_k)_{k \geq 1}$ is a sequence of i.i.d. r.v., $(N_t)_{t \geq 0}$ is the renewal counting process. Let the insurance company carry out investment activities on the Black–Scholes financial market with $B_t \equiv 1$ and

$$\mathrm{d}S_t = S_t(a_t \mathrm{d}t + \sigma_t \mathrm{d}W_t), \qquad S_0 = 1,$$

where the coefficients $a_t = a(\theta_t)$ and $\sigma_t = \sigma(\theta_t)$ depend on a homogeneous stationary Markov chain $(\theta_t)_{t \geq 0}$ with a finite number of states. Then, with the investment strategy $(\beta_s, \gamma_s)_{s \geq 0}$

$$X_t^u = u + \int_0^t \gamma_s \mathrm{d}S_s - \sum_{k=1}^{N_t} \xi_k.$$

Now define the moment of the company's ruin $v_u := \inf\{t > 0 : X_t^u \leq 0\}$ and ruin probability $\Psi(u) := \mathbf{P}(v_u < \infty)$. Applying the methods of renewal theory developed in [1], we obtain the following result.

Theorem. Under some technical conditions, there is $\lambda > 0$ such that

$$\lim_{u \to \infty} u^\lambda \Psi(u) > 0 \quad \text{and} \quad 0 < \liminf_{u \to \infty} u^\lambda \Psi(u) \leq \limsup_{u \to \infty} u^\lambda \Psi(u) < \infty.$$

REFERENCES

[1] Klüppelberg C., Pergamenchtchikov S. The tail of the stationary distribution of a random coefficient AR(q) model // The Annals of Applied Probability. – 2004. – V. 14, № 2. – P. 971 – 1005.