

The thesis is concerned with the problem of sustainable spending towards the end of the human life cycle, which is a substantial quantitative problem in the pension framework. We gradually build a model, which coherently links the three key factors of retirement planning: uncertain length of human life, uncertain investment returns and spending rates. Within the framework of our intuitive model, we apply the method of moment matching to derive an approximation for the probability of individual's retirement ruin. The accuracy of presented approximation is analyzed via extensive Monte Carlo simulations. A numerical case study using Czech data is provided, including calculated values for the probability of ruin and maximal sustainable spending rate under various combinations of wealth-to-spending ratios and investment portfolio characteristics.