

## Optimizing the allocation of private pension funds in Romania (Pillar II)

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### Abstract

Recent phenomena on the aging of the population due to the improvement of the quality of life, the decrease of the population, the decrease in the fertility rate and the development of the capital markets have led to the encouragement of private pension funds. The private pension system is essential to any modern and prosperous economy; the competitive allocation of capital under this scheme ensures the maintenance / increase of the purchasing power of future earnings from pensions, as well as the most appropriate way to finance national economic development.

Based on extensive literature on the optimization of financial investment portfolios and efficient management of private pension funds, our main objective is to optimize portfolios of private pension funds in relation to the degree of risk assumed by the managers of these funds. In concrete terms, we report optimal weights for the allocation of pension funds in five asset categories (shares, corporate bonds, participation funds, government securities and bank deposits) by using three optimal portfolios models: equipping, minimizing standard deviation and risk minimization.

The database includes the monthly profitability of the five asset fund categories of pension funds, as well as the VUAN evolution of pension funds and the profitability of pension fund managers for the period from August 2013 to July 2018 (5 years). The results obtained will constitute recommendations for private pension fund managers both in choosing the portfolio optimization model and as choices for choosing the optimal combination of assets at a discounted profitability of the portfolio in relation to the assumed degree of risk by each administrator.

**Keywords:** private pension system; optimal financial investment portfolios, the Markowitz model (average variance, MV), the average MCVaR model, the unit value of the net asset (VUAN), the profitability of private pension fund managers.

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