Asset Liability Management Using Derivatives

N. Frangos[1], S. Vrontos[2*] and A. Yannacopoulos[1]

(1) Department of Statistics,
Athens University of Economics and Business
(2) Department of Statistics and Insurance Science,
University of Piraeus

We show how derivatives can be used for efficient and with low transactions costs asset liability management when the stock price process is driven by Brownian motion. We consider both the case of defined benefit and defined contribution pension schemes. We illustrate the use of derivatives in asset liability management using data from the Greek pension system. We study the characteristics of the proposed strategies and specifically we examine the risk of these strategies, as this risk is measured with VaR and CVaR. The results of this work show the advantages of the proposed static strategy in comparison with the usual dynamic strategies.

Key words: asset liability management, Brownian motion; utility theory, pension funding

*svrontos@unipi.gr