DYNAMIC SHORTFALL CONSTRAINTS FOR
OPTIMAL PORTFOLIOS

Daniel Akume, Bernd Luderer and Ralf Wunderlich

Abstract. We consider a portfolio problem when a Tail Conditional Expectation constraint is imposed. The financial market is composed of \( n \) risky assets driven by geometric Brownian motion and one risk-free asset. The Tail Conditional Expectation is calculated for short intervals of time and imposed as risk constraint dynamically. The method of Lagrange multipliers is combined with the Hamilton-Jacobi-Bellman equation to insert the constraint into the resolution framework. A numerical method is applied to obtain an approximate solution to the problem. We find that the imposition of the Tail Conditional Expectation constraint when risky assets evolve following a log-normal distribution, curbs investment in the risky assets and diverts the wealth to consumption.

Full text

References


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Daniel Akume  
Mathematics Department,  
University of Buea,  
P.O Box 63 Buea, Cameroon.  
e-mail: d_akume@yahoo.ca

Bernd Luderer  
Faculty of Mathematics,  
Chemnitz University of Technology,  
09107, Chemnitz, Germany.  
e-mail: b.luderer@mathematik.tu-chemnitz.de

Ralf Wunderlich  
Mathematics Department,  
Zwickau University of Applied Sciences,  
08012, Zwickau, Germany.  
e-mail: ralf.wunderlich@fh-zwickau.de