



UNIVERSITÀ
DEGLI STUDI
DI BERGAMO

Department
of Management

Research Seminars Series

A.Y. 2023-2024 2nd Term

May 7, 2024 – 3:00 p.m. (CET)

In room 22, via dei Caniana 2

AND Online on Microsoft Teams ([link](#))

Presenter: Stefano Benati

Università di Trento

TITLE: A relative robust approach on expected returns with bounded CVaR for portfolio selection

ABSTRACT: A *robust optimization* model to find a *stable* investment portfolio is proposed under twofold uncertainty sources: the random nature of returns for a given economic scenario which is in itself unknown. Our model combines expected returns together with risk and regret measures in order to find a solution ensuring acceptable returns while the investor is protected from the market *volatility*. More formally, we formulate a model that minimizes the maximum regret on the expected returns while the conditional value-at-risk is upper bounded under different scenario settings. Several mathematical formulations are analyzed. Duality relations drive us to obtain bounds on the optimal objective value of the problem in order to develop a cutting plane approach. We show experimentally that, despite the large number (hundreds of thousands) of constraints and variables of the resulting problem, an optimal portfolio can be found in a few seconds. Finally, our model is tested in a financial decision-making environment by simulating its application in different markets indexes and under different underlying economic conditions. It will be seen that using scenarios usually improves the realized portfolio returns.

TYPE OF RESEARCH – Empirical and Theoretical

STAGE OF RESEARCH – Concluded and Published

For further information please refer to: seminars.dipsa@unibg.it

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