FINANCIAL MATHEMATICS RESEARCH GROUP

Webinar Series

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'Cryptoassets portfolio selection and optimization'

Dr Jules Mba, University of Johannesburg

ABSTRACT: Nobel Prize winner Harry Max Markowitz in his modern portfolio theory (MPT) defined an approach to constructing portfolios in 1952 that has since become the model followed by most advisors and investors. This approach provides for the construction of investment portfolios that maximize expected returns based upon a targeted level of risk. Markowitz's efficient frontier, which maximizes returns for a given level of risk, is reached by smartly combining assets in a portfolio.

The financial crisis of 2008 caused many financial advisors and wealth managers to evaluate different approaches to diversified portfolio construction by including nontraditional assets that perform in a non-correlated fashion to stocks and bonds. In the ashes of the 2008 financial crisis, Satoshi Nakamoto build the concept of Bitcoin. Bitcoin ignited the cryptocurrency revolution, and its success has led to the birth of numerous other cryptocurrencies, making them significantly investable assets for innovative investors. The cryptocurrency market is known to be highly volatile due on one hand to its sensibility to new information, whether fundamental or speculative since it does not rely on the stabilizing policy of a central bank. On the other hand, the relative illiquidity of the market with no official market makers makes it fundamentally fragile to large trading volumes and to market imperfections, and thus more prone to large swings than traditional assets. In this talk, we will evaluate in terms of risk-reward performance, crypto portfolio selection models that account for hetereskedacticity, dependence structure, heavy-tails, jumps/structural breaks features, as well as the behavioral approach to portfolio construction. Competition between cryptocurrencies will be assessed using some variants of Grey Lotka-Volterra models.

BIO: Dr Jules Mba received a BSc degree in Mathematics in 1999 from University of Douala, an Advanced Diploma in Education in 2003 from Teachers Training College of the University of Yaoundé 1, a MSc in Differential Geometry in 2006 from the University of Yaoundé 1, Cameroon. In 2011, he received a PhD degree in Group Theory from the University of the Western Cape. He completed a MCom in Financial Economics in 2018 from the School of Economics of the University of Johannesburg. He joined the Department of Mathematics and Applied Mathematics of the University of Johannesburg since 2012 as lecturer. His present research interests are mainly in financial modeling, risk and uncertainty, portfolio optimization, and group theory. His publications can be accessed through the links:
https://www.scopus.com/authid/detail.uri?authorId=57193263172
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