



Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich



University of
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Mean Variance Portfolio Construction with Recurrent Neural Networks

Master's Thesis
M.Sc. UZH ETH in Quantitative Finance

Departement of Banking and Finance
Universität Zürich
Departement of Mathematics
Eidgenössische Technische Hochschule Zürich

Author
Karim Jérôme Ferchichi

Supervisor
Prof. Dr. Felix Kübler
Co-Supervisor
Marlon Azinovic

Abstract

This thesis attempts to overcome the persistent shortcomings of the mean-variance paradigm by using recurrent neural networks (LSTM) to forecast tangency portfolio weights of equity indices. In order to enlarge the available data set, the LSTM is mostly trained on data coming from indices not included in the backtested portfolio. The LSTMs can find a weak structure between input and output data, which can be observed on several levels. However, the structure is not exploitable and does not lead to outperformance. Furthermore, the thesis shows the beneficial characteristics of recurrent layers, confirms the ranking of the importance of different variables found in other research, and endorses the need for computational power.