

Final Master's Thesis

Application of artificial neural networks and quadratic programming in portfolio management

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Abstract {.unnumbered}

In the context of the financial world in constant change and complexity, this work deals with the application of artificial neural networks and quadratic programming in the management of financial portfolios. The importance of properly characterizing financial time series for more accurate forecasting is highlighted, and the potential of combining convolutional neural networks and LSTM to improve time series forecasting is examined. In the portfolio composition process, quadratic programming is applied as an efficient technique to achieve an optimal distribution of financial assets. In conclusion, the approach of combining artificial neural networks and quadratic programming shows promise in the management of financial portfolios, but a deeper and more exhaustive study is necessary to determine its optimal efficiency. This paper lays the groundwork for future research, highlighting the importance of using up-to-date data and properly configuring models to achieve more informed and effective portfolio management in an ever-evolving financial environment.

Keywords: portfolio management, portfolios, artificial neural networks, quadratic programming, financial time series, price prediction, portfolio composition