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**University of
Zurich**^{UZH}

Forecasting Optimal Gross Leverage for Long-Short Portfolios

Master's Thesis

Submitted in partial fulfilment of the requirements for the degree of
Master of Science UZH ETH in Quantitative Finance

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February, 2022

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Abstract

This thesis examines how investors can optimise the level of gross leverage in their portfolios according to arbitrary investment objectives. An approach based on ARIMA modelling is proposed that generalises methods found in existing academic literature. Through regular hyper-parameter selection, this method allows for changing dynamics of optimal shorting limits to reflect different market conditions. Various combinations of hyper-parameter selection methods and objective functions are examined to see the impact on the estimated shorting limits. The results show that the choice of objective function has a major impact on the dynamics of the optimal gross leverage limit, which in turn has a significant impact on portfolio behaviour. The results give a clear indication to the effectiveness of long-only portfolios when comparing various performance metrics. When considering transaction costs, portfolios that have gross leverage limits also see further improvements due to lower portfolio turnover.

Keywords: Portfolio Management, Gross Leverage, ARIMA Models

Acknowledgements: I would like to thank my supervisor Prof. Dr. Marc Paoletta for all his support and guidance throughout my research. I would also like to thank my co-supervisors Prof. Dr. Pawel Polak and PhD candidate Mr. Simon Hediger for their expertise and insights to help refine the path for my research. The valuable time that they all gave me is greatly appreciated. I would then like to thank my peers in my academic programme who I turned to for advice. I would finally like to thank my parents for their emotional support throughout this process and for making my studies possible.