



**University of  
Zurich**<sup>UZH</sup>

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# Robust Covariance Matrix Estimation for Financial Portfolio Optimization

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BACHELOR THESIS

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## **Abstract**

This thesis investigates a recent idea on the allocation of financial assets by Gerber et al. (2021). These authors proposed a new co-movement measure, the Gerber statistic, to estimate the covariance matrix. The Gerber statistic is a non-parametric statistic based on Kendall's Tau (1938), is an extension of it, which is expected to provide more robust and better results than the historical covariance and the shrinkage method of Ledoit and Wolf (2004). In this work, their methodology is applied to related but different data and performance is compared with commonly used benchmark methods. In general, the statistical quality of the method is verified, and the results of the original paper are supported by different data.