

## Abstract

This thesis represents an in-depth empirical study of the dependence structures within the term structure of interest rates. Firstly, a comprehensive overview of term structure modelling literature and methods is provided together with a summary of theoretical notions regarding the use of high-frequency data and spectral analysis. Contrary to most studies, the frequency-domain approach is employed, with a special focus on dependency across various quantiles of the joint distribution of the term structure. The main results are obtained using the quantile cross-spectral analysis, a new robust and non-parametric method allowing to uncover dependence structures in quantiles of the joint distribution of multivariate time series. The results are estimated using a dataset consisting of 15 years worth of high-frequency tick-by-tick time series of US Treasury futures. Complex dependence structures are revealed showing signs of both cyclicity and dependence in various parts of the joint distribution of the term structure in the frequency domain.

**JEL Classification** C49, C55, C58, E43, G12, G13

**Keywords** term structure of interest rates, yield curves, high-frequency analysis, spectral analysis, interest rate futures

**Author's e-mail** adam.nedved@fsv.cuni.cz

**Supervisor's e-mail** barunik@fsv.cuni.cz