

Twan Mulder

Personal Information:

Name: Twan Richard Mulder
Date of Birth: 09-04-2002
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Education

October 2024 – Present

MSc Statistical Science

University of Oxford, Oxford, United Kingdom

- Dissertation: Machine Learning & Return Predictability

September 2020 – September 2024

BSc Econometrics & Operations Research, Summa Cum Laude

Erasmus School of Economics, Rotterdam, Netherlands

- Specialization: Quantitative Finance (9.6/10.0)
- Minor: Advanced Computer Science (9.7/10.0)
- GPA: 9.11/10.0 (Top <1%)

September 2020 – September 2024

BSc Economics & Business Economics, Summa Cum Laude

Erasmus School of Economics, Rotterdam, Netherlands

- Specialization: Financial Economics (9.1/10.0)
- GPA: 9.26/10.0 (Top <1%)

Work Experience

September 2022 – September 2024

Research Assistant

Erasmus School of Economics, Rotterdam, Netherlands

- Supervisor: Prof. Philip Hans Franses
- Topic: Forecasting time series data

February 2022 – December 2022

Teaching Assistant

Erasmus School of Economics, Rotterdam, Netherlands

- Courses: Programming, Probability theory

Extracurricular activities

September 2022 – September 2023

Bachelor Honours Research Class

Erasmus School of Economics, Rotterdam, Netherlands

September 2020 – August 2022

Student investor

B&R Beurs, Erasmus Investment Society

Professional Skills

- Programming:
 - R
 - Java
 - Python
 - MATLAB
 - SQL

- Languages:
 - Dutch
 - English

Awards

April 2021

First-Year Cum Laude Certificate

Erasmus School of Economics, Rotterdam, Netherlands

Working Papers:

Spectral Factor Model for Corporate Bonds: Separating Signal from Noise

with Maria Grith and Prof. Patrick Verwijmeren (Erasmus School of Economics)

URL: <https://twanmulder.nl/assets/publications/sfcb.pdf>

Conferences:

Quantitative Finance and Financial Econometrics (QFFE) – Marseille, 3 – 6 June 2025

Society of Financial Econometrics (SoFiE), Main conference – Paris, 9 - 11 June, 2025

International Association for Applied Econometrics (IAAE) Annual Conference – Turin, June 25 - 27, 2025

World Congress of the Econometric Society (ESWC) – Seoul, Korea, 18 - 22 August, 2025.

Abstract

This paper introduces the analysis of factor models in the frequency domain to the corporate bond pricing literature, using the spectral factor model developed by Bandi, Chaudhuri, Lo and Tamoni (2021). We decompose the bond market factor into orthogonal frequency-specific components, where the spectral betas capture frequency-specific systematic risk. Our findings reveal that an annual cycle component of the bond market factor—spanning 8 to 16 months—enhances the bond CAPM. Consistent with previous literature, we show that the liquidity risk factor in the four-factor model of Bai, Bali and Wen (2019) is the only factor adding incremental cross-sectional pricing power beyond the bond market factor. However, when the bond market factor is substituted by its annual cycle component, the liquidity risk factor loses its incremental pricing power. Supported by additional evidence, we conclude that the annual cycle component can be interpreted as the liquidity cycle of the bond market factor. Moreover, the results indicate that dimensionality reduction in factor models can be achieved, by separating signal from noise in the frequency domain.