Volatility Forecasting Factors

Marco Cinquetti
PhD Researcher
Lancaster University Management School
m.cinquetti1@lancaster.ac.uk

Seok Young Hong
Nanyang Technological University

Ingmar Nolte
Lancaster University Management School

Sandra Nolte
Lancaster University Management School

Abstract

This paper examines the predictive role of high-frequency factor volatilities in modeling the volatility of individual stocks. We develop a dynamic forecasting framework that selects the most informative factor-specific realized volatility from a large cross-section of asset pricing anomalies. Embedded in a log-linear specification, the model integrates both market-wide and idiosyncratic components, allowing for a flexible representation of volatility dynamics. We prove the selection-consistency result and show that our selection rule asymptotically identifies the factor that truly drives volatility. We further show how the adaptive selection is affected by the measurement error. Empirical results based on a broad universe of U.S. equities demonstrate that the proposed method significantly outperforms standard benchmarks, both statistically and economically. The findings underscore the importance of incorporating high-frequency cross-sectional information in volatility modeling, offering a scalable and interpretable approach to understanding time-varying risks in equity markets.