



THE UNIVERSITY OF
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Department of Statistics

MASTER'S THESIS PRESENTATION

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Nonparametric Estimation of Time-Varying Coefficient Realized
Volatility Models

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ABSTRACT

The volatility of financial time series has generally been modeled and estimated as a latent factor as is the case with the ARCH/GARCH family of volatility models. Corsi in his 2009 paper proposed a heterogenous autoregressive (HAR) model which instead relied on realized volatility (RV) which is directly observable and calculable. An extension to the HAR model proposed was by Chen, Gao, Li, and Silvapulle in 2018, who tested allowing the coefficients of the HAR model to vary with time thus creating the TVC-HAR model. The time varying coefficients have no specified functional form and are fit via a local linear estimator with bandwidth chosen via cross validation. This paper seeks to replicate their simulation results and explore model performance on lower frequency S&P 500 index data.