

Generalized Correlation Tests and Forecasts of the VIX Using Non-linear Models

David Edmund Allen

School of Mathematics and Statistics, The University of Sydney, Australia

Department of Finance, Asia University, Taiwan

School of Business and Law, Edith Cowan University, Australia

Email: profallen2007@gmail.com

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Abstract: The paper features an analysis of causal relations between the VIX, S&P500, and the realised volatility (RV) of the S&P500 sampled at 5 minute intervals, plus an application of an Artificial Neural Network (ANN) model used to forecast the VIX. Causal relations are analysed using the recently developed concept of general correlation Zheng et al. (2010) and Vinod (2017). The neural network analysis is performed using the Group Method of Data Handling (GMDH) approach. The results suggest that causality runs from RV to the VIX and out of sample tests suggest an ANN model can successfully predict the VIX using RV and S&P500 Index continuously compounded returns as inputs.