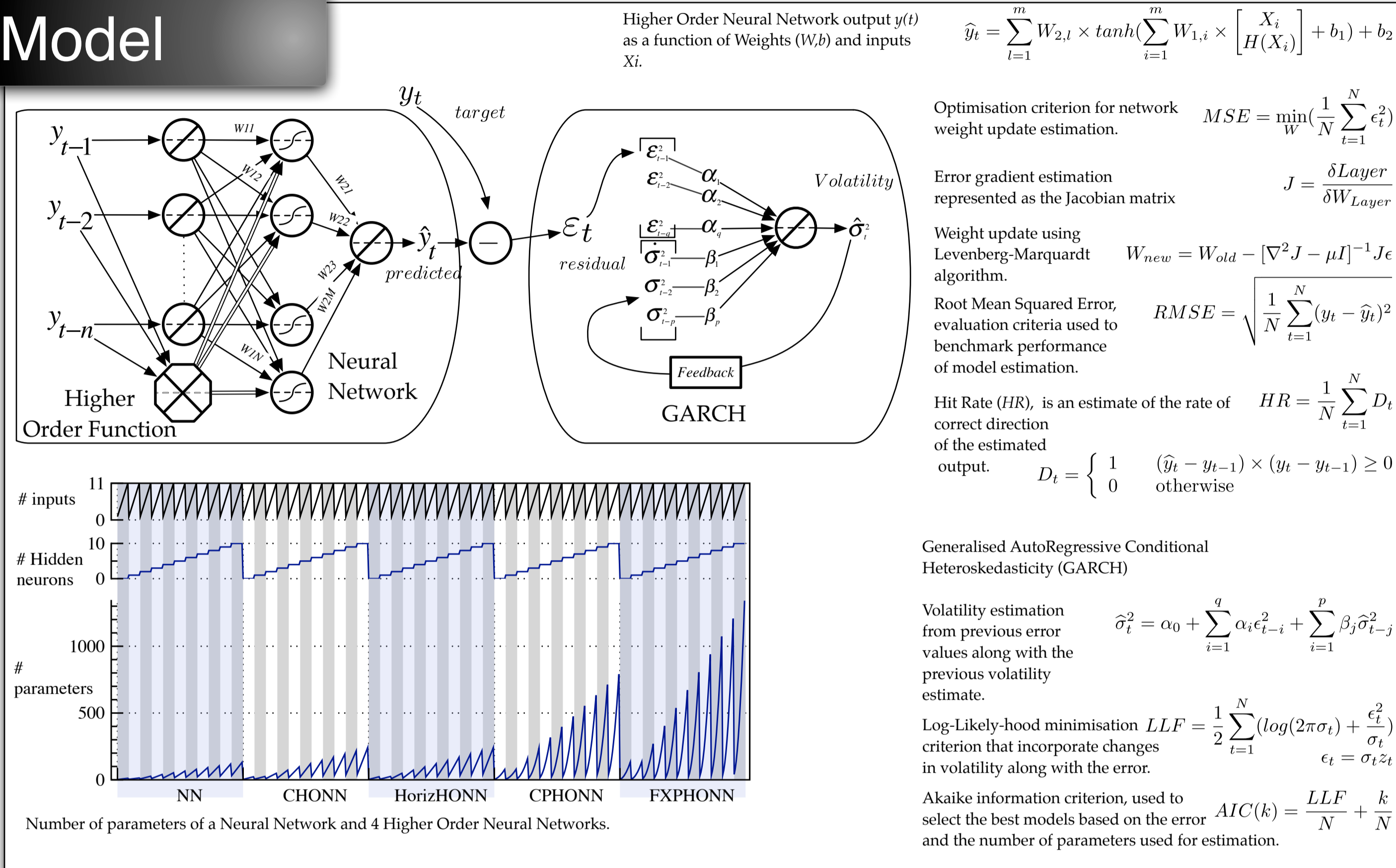


FTSE 100 Returns and Volatility estimation using Higher Order Neural Networks

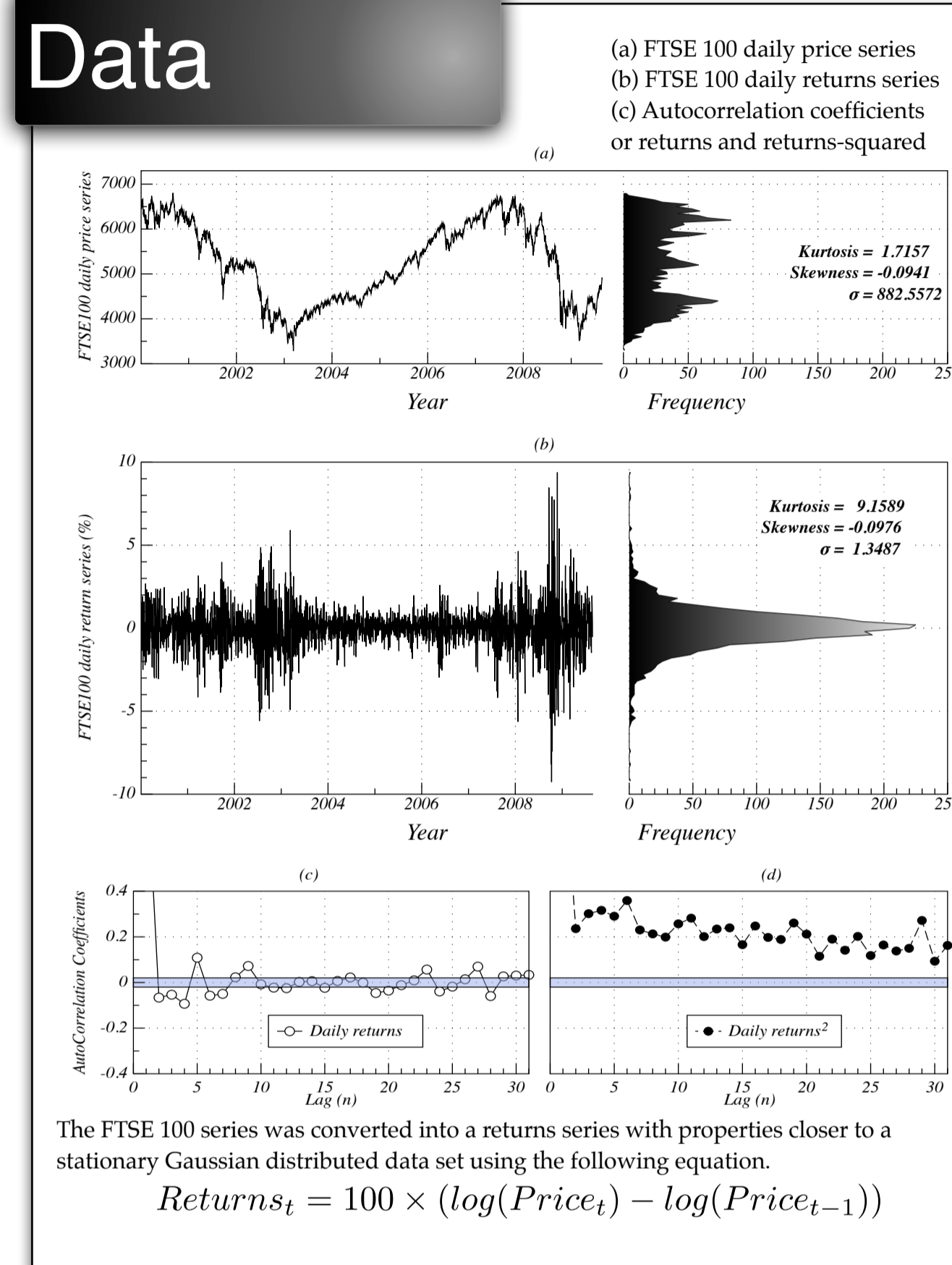
Janti Shawash, Dr David R. Selviah
Department of Electrical and Electronic Engineering



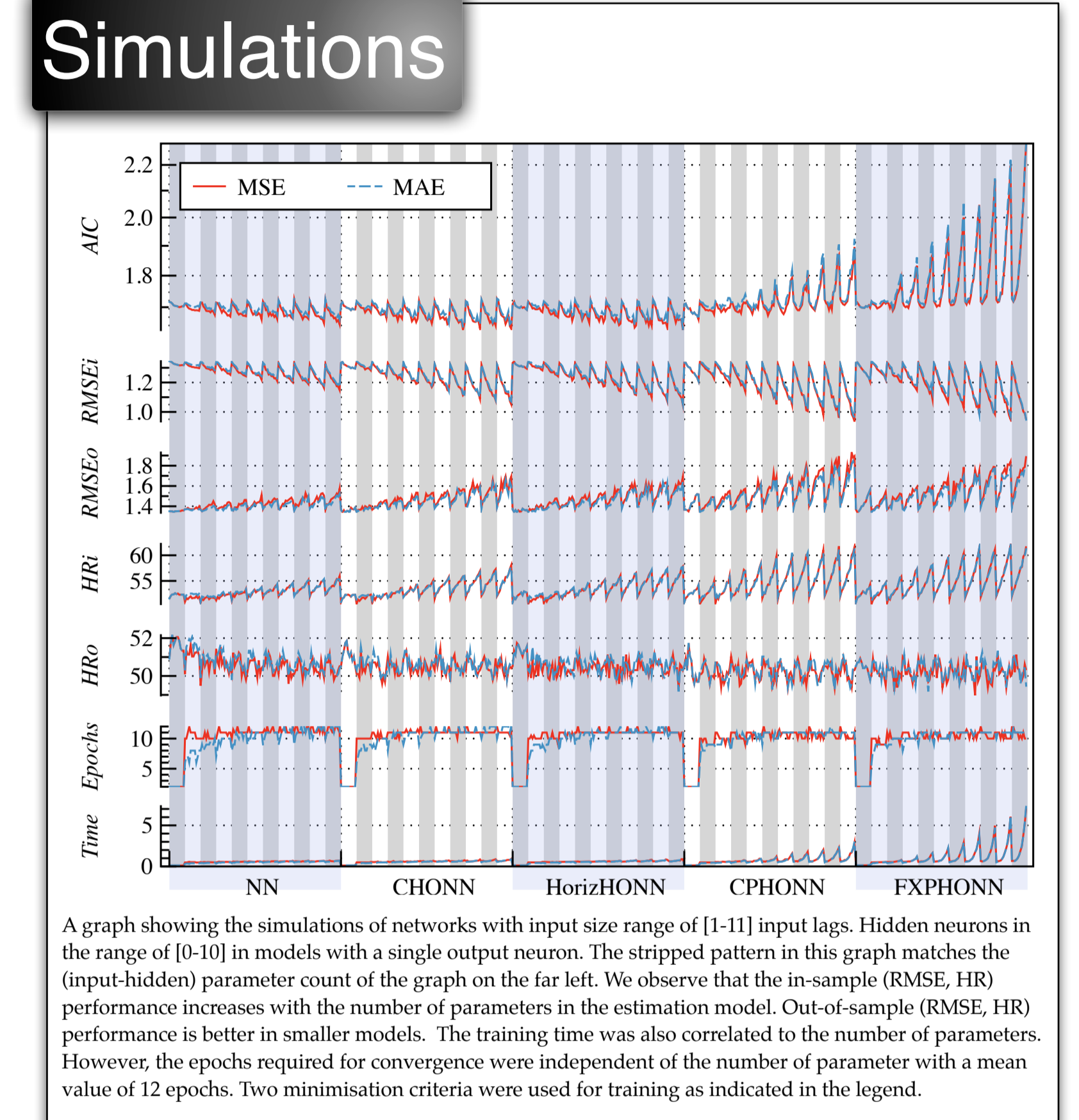
Model



Data

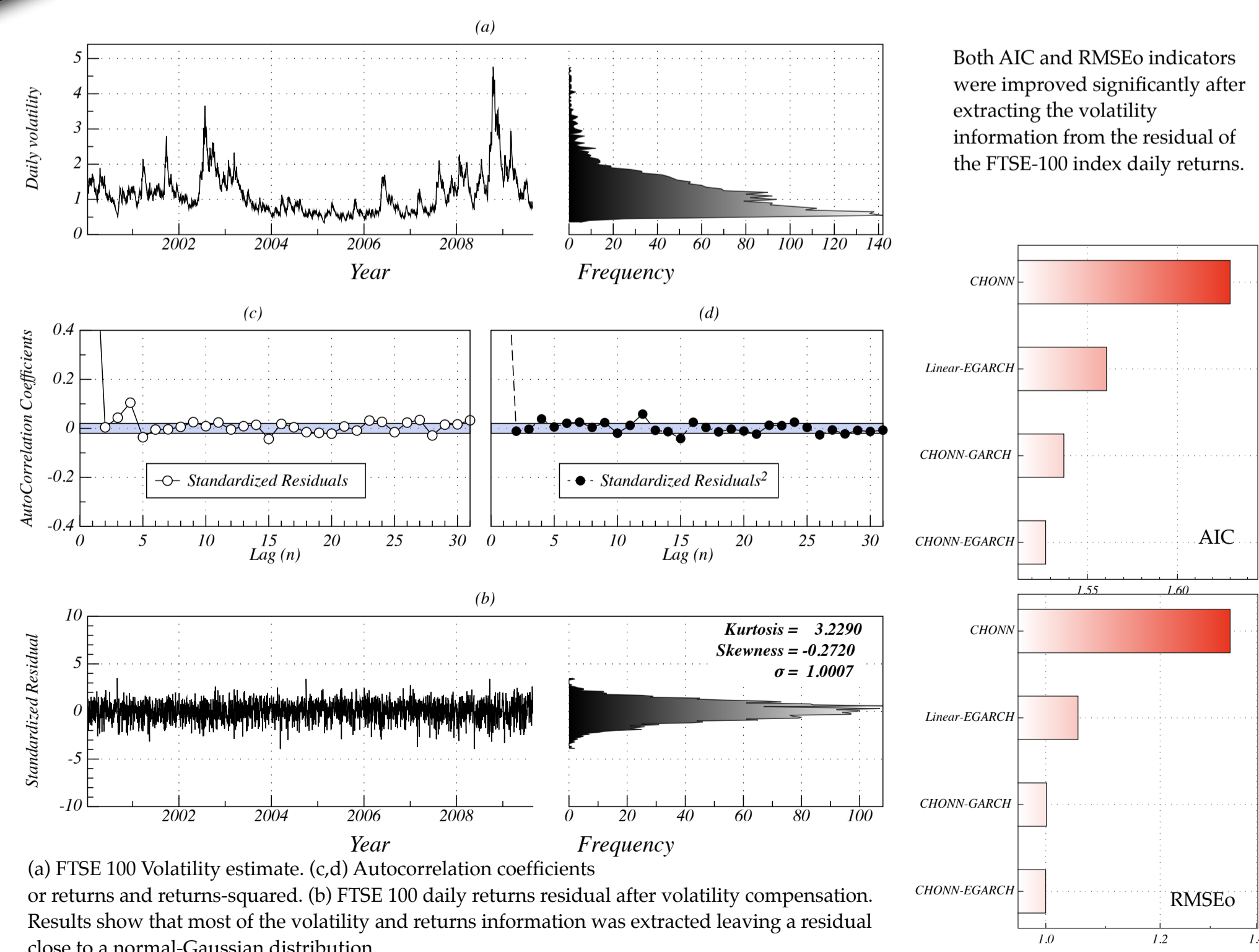
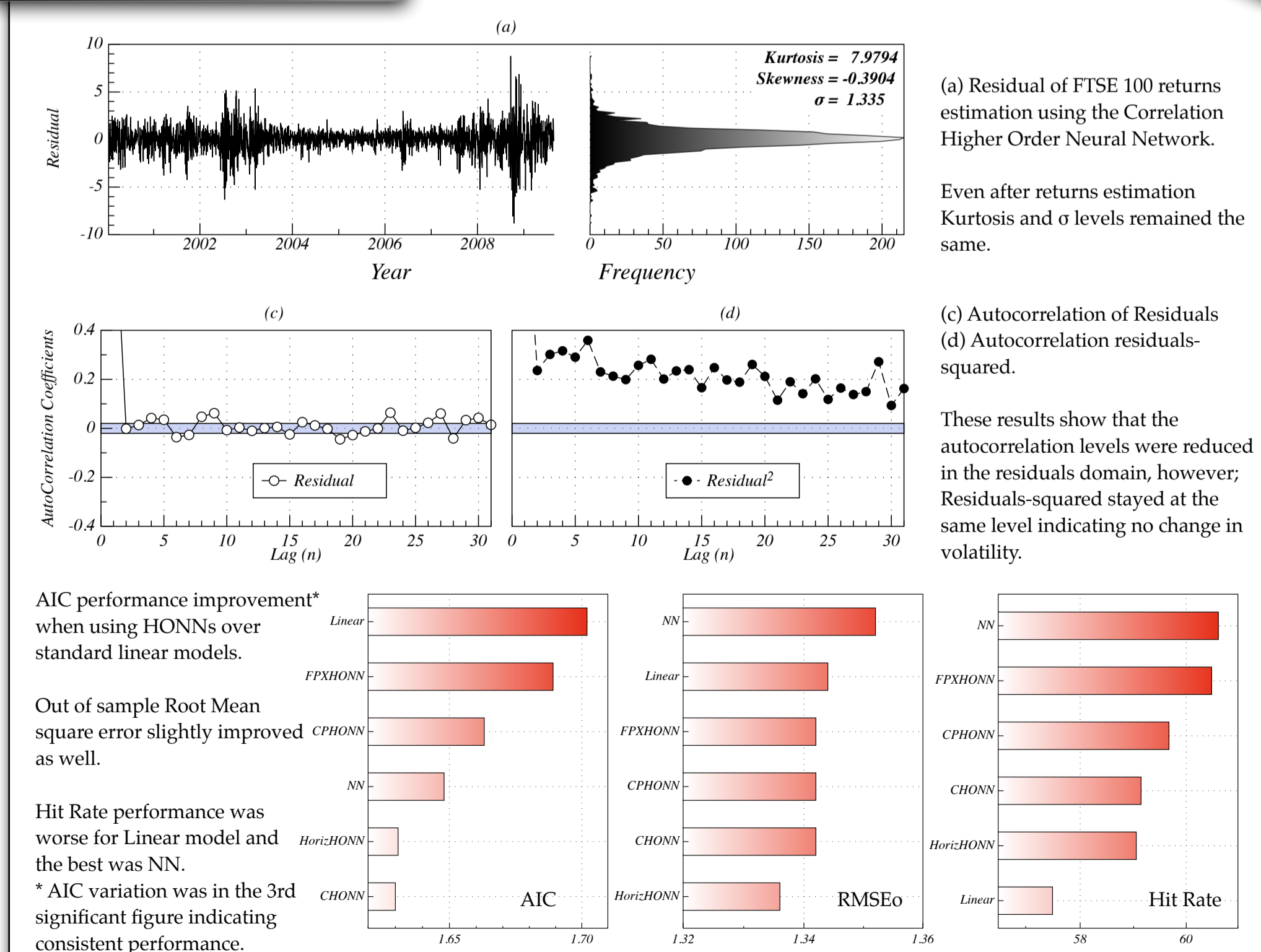


Simulations



Results

Returns Volatility



Conclusion

This work compared Higher Order Neural Networks (HONN) with Neural Networks, and linear regression for short term forecasting of stock market index daily returns.

Two new HONNs, the Correlation HONN (CHONN) and the Horizontal HONN (HorizHONN) outperform all other models tested in terms of the Akaike Information Criterion, out-of-sample root mean square error, of FTSE100 and NASDAQ giving out-of-sample Hit Rates of up to 60% with AIC improvement up to 6.2%. New hybrid models for volatility estimation are formed by combining CHONN with E/GARCH are compared with conventional EGARCH, providing up to 2.1% and 2.7% AIC improvement for FTSE100 and NASDAQ.

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