

TRINITY COLLEGE DUBLIN

## *Abstract*

School of Engineering  
Electronic and Computer Engineering

Master of Engineering

### **Multiresolution Analysis of the Relationship between Markets and Sentiment**

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This thesis outlines the work done as part of completion of a Masters of Engineering at Trinity College, University of Dublin. The work attempts to explain the variance in market data with sentiment expressed in online and print news. The project choose the oil market as one for study, as it is free from the amount of noise traders on the stock exchange, but still contains enough variance to be of interest. It is also a world wide market that is covered by large news corporations, making sentiment towards the market easy to find. The transformation of raw news articles into positive and negative sentiment values was done using Rocksteady, a system developed here at Trinity College. The data was decomposed into different timescales using the wavelet transformation, to see how the relationship between sentiment and prices changed with the timeframe. Finally, Vector Autoregression models and Granger Causality tests were used to study their relationship. Results show that on longer timescales, sentiment has no impact on the market, as hypothesized. However, on shorter timescales up to a week, negative sentiment does play a role in market prices, with feedback between prices and sentiment also discovered. This thesis outlines a method that could be used for future work, which may include looking at other markets, other news sources or other types of sentiment e.g. positive.