Forecasting S&P 500 Index – A deep learning approach with the power of Virtual Investing Communities

February 1st, 2018
Benjamin M. Abdel-Karim
Goethe-Universität, Frankfurt
1. Background

- Forecasts are relevant to decisions [Kashefia, 2016]
- Simple model is good [Welch & Goyal, 2008]
- Financial markets are complex [Lahmiri, 2016]
- There are new sources of information

Research Question:
Do Virtual Investing Communities contain information to forecast the financial market with artificial intelligence?
1. Background

- Virtual Investing Communities are platforms for Trading and Information Exchange

Raw Data Points: 1,537,875
Dataset 1:

Normalized time series course

Dataset 2:

Course of the opinion index

- Index value of opinions
- Moving average with 7 periods
3. Method

Historical Consistent Neural Network

Prediction process

Financial market as closed system

Described as a state vector

System states are forecast
4. Results

- Forecasting with this approach is possible
- Forecasting paths with probabilities of occurrence
- The additional information has an advantage
5. Summary

- Artificial intelligence can make predictions
- VICs have an additional information content
- HCNN is good for complex and nonlinear data
- HCNN is able to handle Big-Data
- Computing power is required
- Which data are the right ones?
- Artificial intelligence like Blackbox


