

Stock prediction

Can we disprove Efficient Market Hypothesis

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- **Stock prediction** : A hot topic for researchers worldwide
- But **Efficient Market Hypothesis (EMH)** states that:
 - Stock price always fully reflect all available information.
 - It is impossible to consistently make profit by any expert analysis.
 - Only way someone makes a profit is purely by chance.

In our work, we investigate plausibility of disproving Efficient Market Hypothesis

Data Chosen For Our Analysis

- We chose 6 stocks from NSE (leading stock exchange of India).
- Out of 6, 3 are known to exhibit more stable behavior (from NIFTY - 50 list):
 - ITC
 - Tata Steel
 - State Bank of India
- The remaining 3 are comparatively less known and hence susceptible to market swings:
 - Aurobindo Pharma
 - Shree Rama News Print
 - Karuturi Global
- Stock Data from 2011 to 2013 collected for these stocks

Prediction Strategy

- Based on a day's price, we predict swing in next working day's opening price.
- Input features considered are:
 - Opening price
 - Closing price
 - Highest price
 - Lowest price
 - Traded volume (fractional change in traded volume)
- Support Vector Machine (SVM) used for training and prediction
- Radial basis function(RBF) with $C = 1$ and $\gamma = 1$ is used (fixed value)
- 1.5 year data used for training, next 1.5 year data as test data set

Result & conclusion

- For all 6 stocks, irrespective of more stable / less known, SVM model predicts swing trend successfully more than 50% (pure chance) case:
 - ITC - 63.24%
 - Tata Steel - 65.77%
 - SBI - 67.57%
 - Aurobindo Pharma - 64.86%
 - Shree Rama News Print - 70.27%
 - Karuturi Global - 58.11%
- Thus, even with simple analysis, making profit is feasible (from all 6 stocks throughout 1.5 years)
- Thus our study contradicts EMH

Thank You !!