Introduction

Literature on attention and its asset pricing implications suggests that retail traders pay attention to stocks that appear in the media and that they tend to buy attention-grabbing stocks. Stock recommendations on the TV show Mad Money and Wall Street Week have proven to catch people’s attention and create price pressure on the stocks recommended.\[1\] \[2\]. We conjecture that due to limited attention, individuals trade stocks that appear in the media and that they tend to create price pressure on the stocks recommended.\[1\]

We first preprocessed the data:
- Removed records with incomplete information.
- Disregarded selling records.

We then divided the data into 60% training set, 20% dev set, and 20% test set. We used k-fold cross vali-
dation with k = 4.

The feature we selected is the proportion of net purchase of stock i in total net purchase:

$$R_{ij} = 1 + \sum_{j,k} Q_{ij}^{(k)} / \sum_{j,k} Q_{jk}^{(k)}$$

where $Q_{ij}^{(k)}$ is the net purchase of stock j by individual i on the k-th trading record. We call $R_{ij}$ the rating of stock j given by individual i.

Methods

The baseline algorithm

The baseline algorithm predicts a trader’s trading behavior based on his historical trading pattern.

$$\hat{R}_{ij} = R_{ij} = 1 + \sum_{j,k} Q_{ij}^{(k)} / \sum_{j,k} Q_{jk}^{(k)}$$

Co-clustering

$$\hat{R}_{ij} = C_i + \mu_i - C_i + \mu_j - C_j$$

K-nearest neighbors

$$\hat{R}_{ij} = \sum_{x,i} \text{sim}(x,i) \hat{R}_{ij} / \sum_{x,i} \text{sim}(x,i)$$

Slope1 algorithm

$$\hat{R}_{ij} = \mu_i + 1 / |R_i(i)| \sum_{k \in R_i(i)} d(j,k),$$

where $R_i(i)$ is a collection of securities rated by i that has common buyer(s) with j, and $d(j,k)$ is the average difference in ratings.

The SVD algorithm

$$\hat{R}_{ij} = \mu + a_j + \beta_j + w_i^T v_e,$$

We used four different metrics to measure the performance of the five aforementioned algorithms. We ignored accounts with less than k (i.e., = 0, 5, 10) trading records. We selected the best performing model, the SVD model, and performed error analysis on the test set subsequently. The results are displayed in a data visualization.

Future Directions

• Construct a probabilistic model of how individuals trade.
• Improve the current algorithms (feature selection; accounts with minimal trading records; demographic data).
• Use trading actions on listed securities and off-list securities to predict stock price movements.
• Detect illegal trading.

References


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