CORRELATION BETWEEN NEW EVENTS AND TWITTER'S SENTIMENT

AN SHI

HAO GAO

INTRODUCTION

- Basic concept:
  - Event Study
  - Twitter Sentiment
  - Hypothesis
    - Market Efficiency Theory
    - Irrational Exuberance

RELATED WORKS

- Twitter Mood Predicts The Stock Market

- Stock Prediction Using Twitter Sentiment Analysis

- Correlating Financial Time Series With Micro-Blogging Activity

- Investor Sentiment In The Stock Market

DATA

- Stock Price: Yahoo Finance

- Twitter: Iron

METHODS & EXPERIMENT I

- Stock Price:
  - Event: New Products Releasing
  - Time Interval: -10 ~ 0 ~ +10
  - Market Beta: $R_i = \alpha + \beta R_B + T$
  - Expect Return: $ER_i = \hat{\alpha} + \hat{\beta} R_B$
  - Excessive Return: $\varepsilon_{i,t} = r_{i,t} - E(r_i | r_{n,t})$

  - Over All Reaction: $\sum_{i=-10}^{+10} \varepsilon_{i,t} = E_{i,+10}$; $\bar{E}_t = -\frac{\sum_i^M E_{i,t}}{\mu}$

Daily Average Residual

METHOD & EXPERIMENT II

- Twitter:
  - Corresponding Event:
  - Corresponding Time Interval:
  - SentiWordNet 3.0: Positive, Negative, Neutral. Sum to 1
  - Stanford POS Tagger: Part Of Speech
  - Sentiment Abstraction: Key Words

METHOD & EXPERIMENT III

- Correlation Between Twitter Sentiment and Excessive Return:

- [Avg Positive Score, Avg Negative Score] of tweets with Excessive Return
  - ipad1: 0.37, ipad3: 0.00

- [Avg Positive Score, Avg Negative Score] of words with Excessive Return
  - ipad1: 0.42, ipad3: 0.18

CONCLUSION

- There is no clear linear correlation between stock price and tweets sentiment around certain events

- Making Money Isn't Easy

- However, there is an interest pattern

FUTURE WORKS

- Model: Financial Methods Towards Sentiment Analysis: Behavior Finance

- Algorithm: None Linear Model; Keywords and Scales

- Classification For Both of Them

QUESTIONS?

- Anyone?