Maxim Dokukin

017025164

MATH 167R Sec 01

Prof. Gao

05/01/2024

Inferential analysis

This analysis explores the potential correlation between the reporting gap (the interval between the transaction date and its disclosure to the public) and the profitability of trades conducted by U.S. politicians. This relationship could indicate whether longer reporting gaps are exploited for financial gain.

Python was heavily used to scrape data, fetch accurate prices, and group reported transactions into trades. The process involves a significant amount of complex algorithms. I could rewrite this code in R, but I do not see the necessity. Please let me know if it is required.

The algorithm groups transactions by politician and ticker, then sorts them by date. For each ticker and politician it collects data on 'BUY' transactions until a 'SELL' transaction occurs, marking the start of a selling phase. If another 'BUY' transaction occurs during this phase, it calculates the profit for that cycle and resets. Profits are annualized by comparing the buy and sell prices over the period between the average buy and the average sell dates.

The main assumption for this method to be valid is that all 'BUY' transactions, followed by 'SELL' transactions until the next 'BUY', trade the same amount of stock. This amount is assumed to be evenly distributed across all 'BUY' transactions for calculating the purchase price, and the same applies to 'SELL'.

A scatter plot with a linear regression line revealed that the correlation between the reporting gap and trade profitability is close to zero. This indicates no significant correlation between these two variables.