

Relationships Between Types of Index Funds and Portfolio Values

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INTRODUCTION

There are several aspects that contribute to the value of a portfolio invested in the stock market. This research focuses on how the type of index fund and the frequency of rebalancing affects the value of a self-financing portfolio over time.

The primary index funds investigated are a market cap weighted index, an equally weighted index, and an index fund investing in one unit of each stock. The portfolio will be rebalanced over four different time intervals: daily, weekly, monthly, and quarterly.

REBALANCING FORMULA

$$\sum [\#shares(t) * price(t + 1)] = \sum [\#shares(t + 1) * price(t + 1)]$$

$$\text{Market Cap Weighted: } \#shares(t) = \frac{\frac{1}{\% \text{ comp}} val(t)}{price(t)}$$

$$\text{Equally Weighted: } \#shares(t) = \frac{\frac{1}{n} val(t)}{price(t)}$$

$$\text{One in Each: } \#shares(t) = \frac{1}{\sum price}$$

FUTURE WORK

The calculated portfolio values do not include transaction costs. Next steps for this project include determining how these costs affect net returns and investigating trading strategies for investors.

ACKNOWLEDGEMENTS

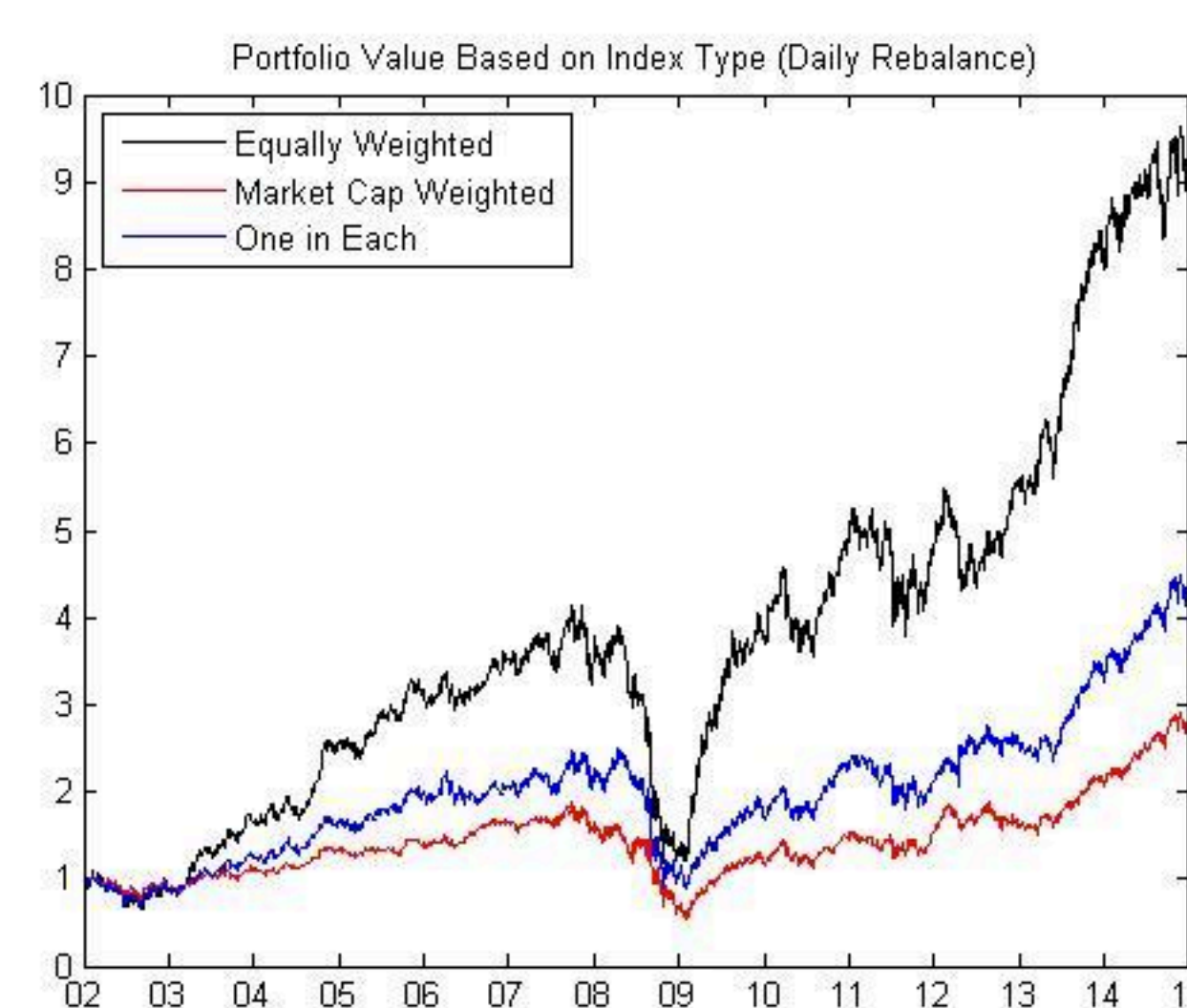
Thank you to Professor Feinstein for your support and guidance throughout the semester.

OBJECTIVES

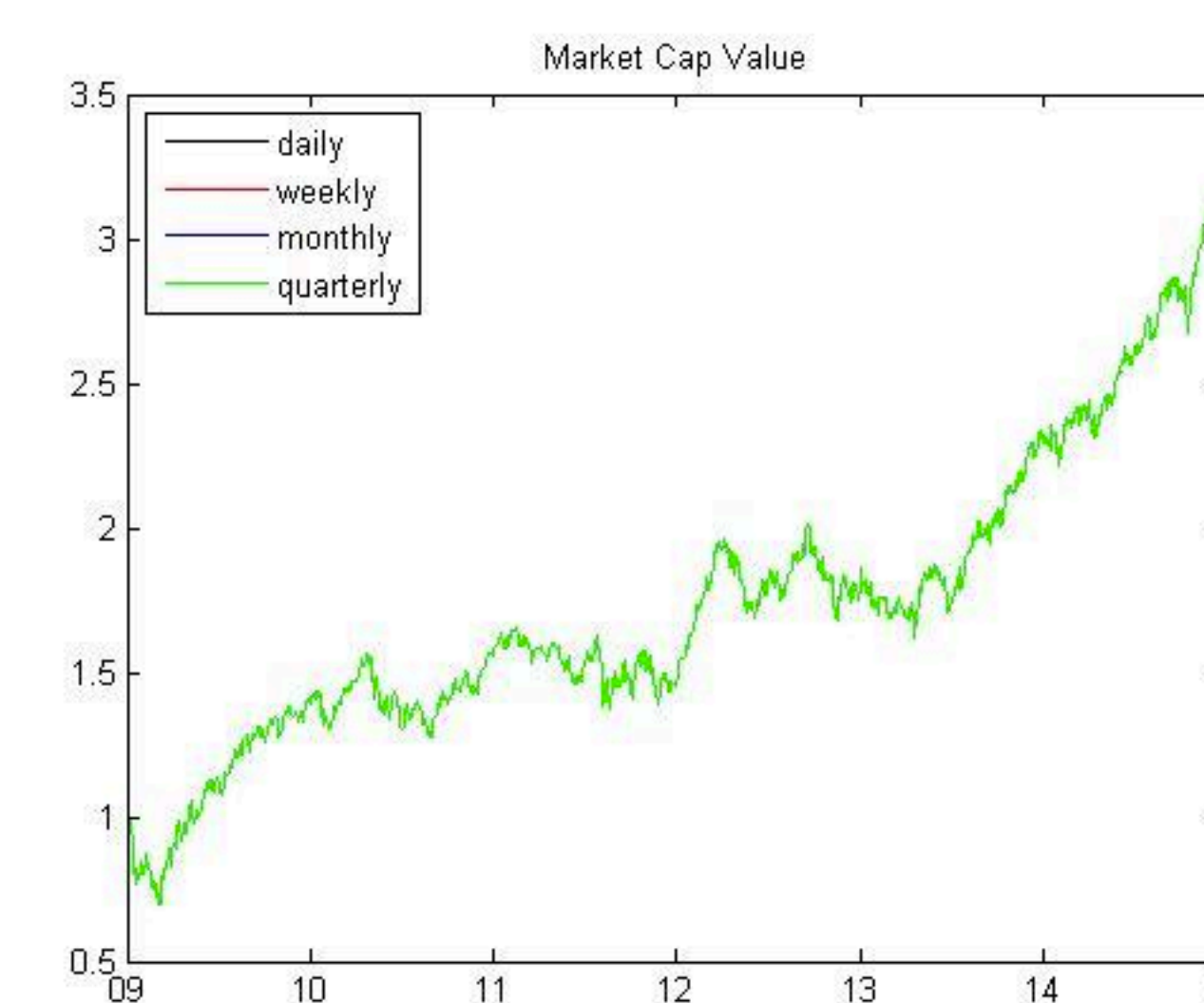
Using a portfolio containing nine stocks from the S&P 500, this research will analyze the following:

- Differences in volatility among indexes
- Impact of index type on portfolio value
- Impact of rebalancing frequency on portfolio value

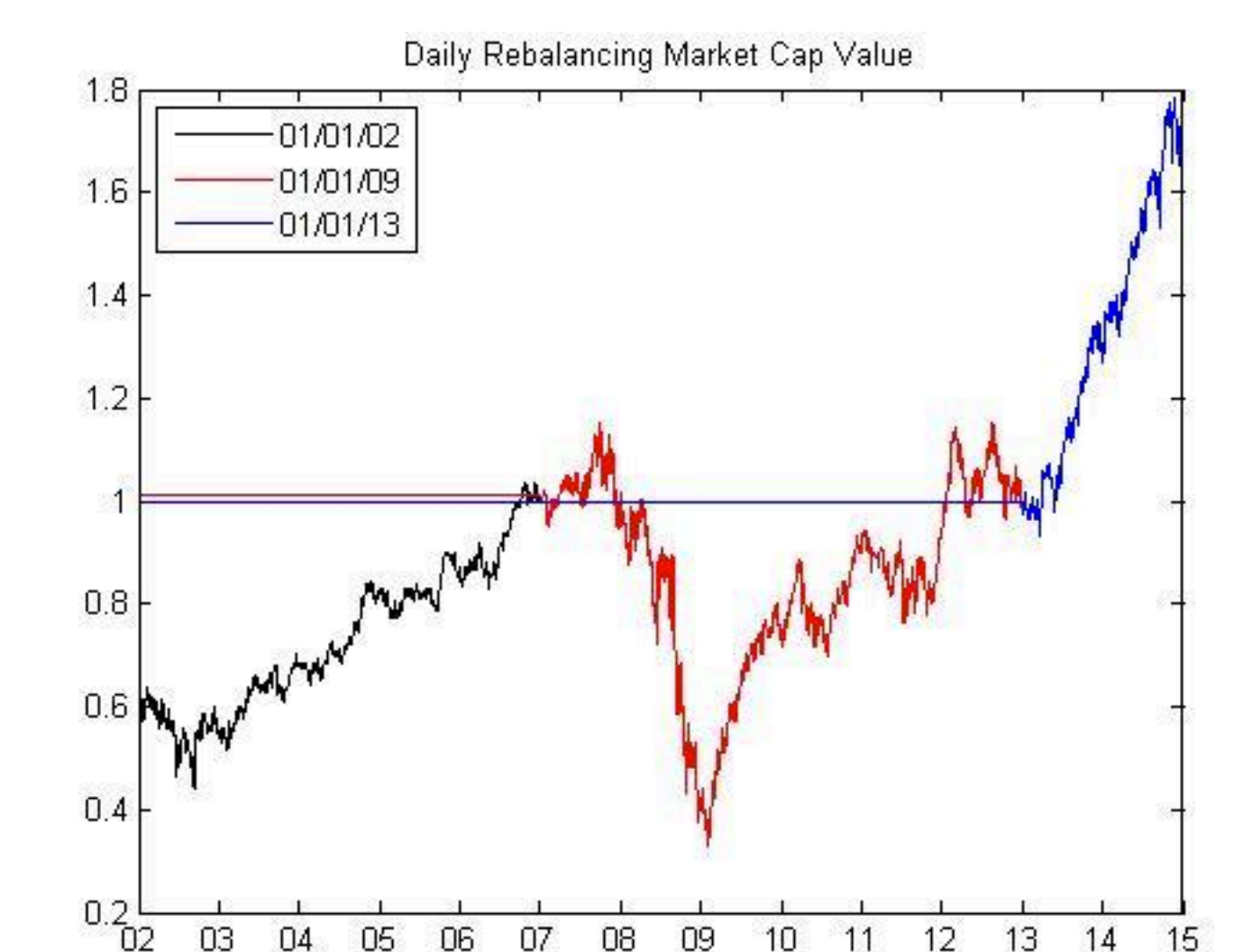
RESULTS & CONCLUSIONS



- Portfolio invested in the equally weighted index performed the best
- Portfolios in the equally weighted index are subject to higher volatility



- Rebalance frequency does not affect a portfolio's performance in the market cap weighted index
- Portfolios rebalanced daily in the equally weighted index perform best



- After normalizing portfolio values at the final start day, all portfolios, regardless of start date, have the same performance
- This result occurs for both the equally weighted index and the market cap weighted index

METHODS

- Collect adjusted close price from Yahoo! Finance
- Rebalance and calculate values of the portfolio while varying index type, rebalance frequency, and portfolio dates.