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Abstract

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Songs and Stocks

Using the Billboard Number 1 song to predict S&P returns.

# Introduction

Knowledge of investor sentiment can be used to build a profitable trading strategy due to its mean reverting nature. If sentiment is high (positive) and stock prices increase, then they are likely to decrease as sentiment reverts to normal.

Our hypothesis is that the Billboard number 1 song can be used to measure investor sentiment; if the number 1 song is positive then sentiment is positive and vice versa. From this sentiment the future S&P 500 moves can be predicted.

To summarize, we hypothesize that Billboard number 1 song sentiment is correlated with future stock returns.

# Data Collection

## Number 1s

Our plan was to utilize an existing data set of weekly number 1 songs for the 10-year date range from 2005 to 2015. Initially we attempted to scrape directly from the Billboard site but server API limits made this unfeasible for such a large amount of data.

The dataset used is from <https://data.world/kcmillersean/billboard-hot-100-1958-2017> created by Sean Miller.

# Song Sentiment

Our plan was to utilize existing Natural Language Processing analysis of song sentiment which we can match to the songs in our scope. We used the dataset from <https://github.com/kevinschaich/billboard> created by [Kevin Schaich](https://kevinschaich.io/).

# Data Clean-up and Analysis