Stock Forecasting with Time-Series

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The Data

provided by **Yahoo Finance**

SPY Data taken daily from **2001 - 2020** (present)

-4800 rows of data total

Columns include: volume, closing price, opening price, etc

-focused on **closing price**

-more trading happens at closing (large institutions)

Fundamentals vs. Technicals/Quant

Fundamentals:

-Broad statement that describes the overall quality of the investment or traded vehicle

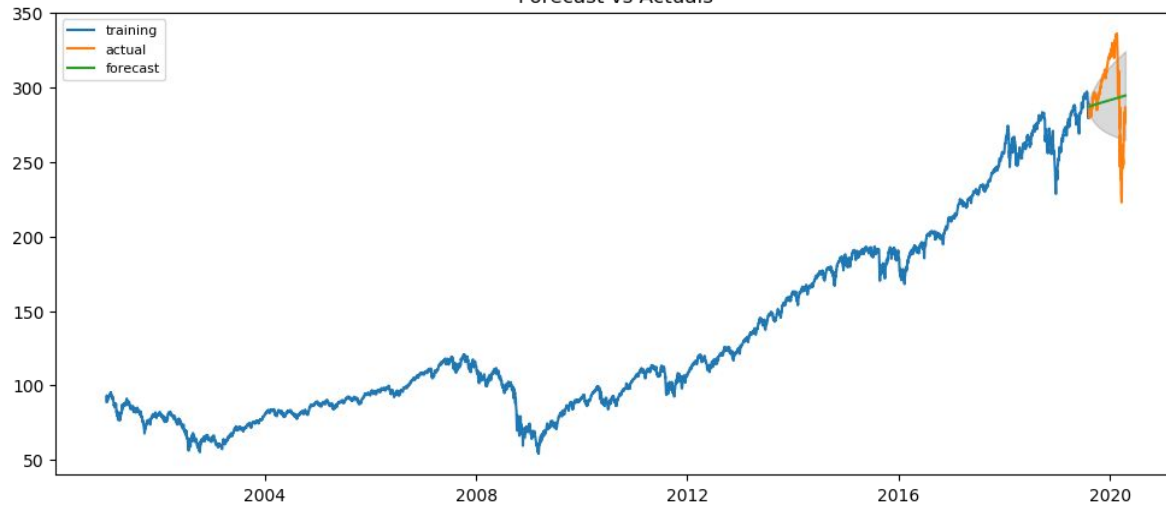   -includes things from earnings, to macroeconomics, to news events

Technicals + Quantitative:

-Technical Analysis: a derivative look at price action (buys+sells) that create repeatable patterns across history
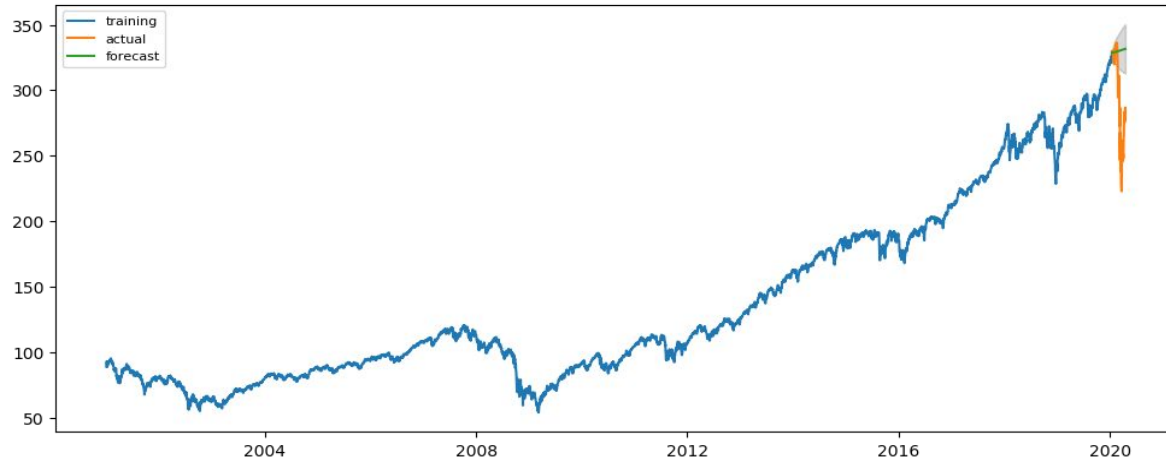
-Quantitative: factor investing, deep-learning algos

Forecast vs Actuals

Forecast vs Actuals

-seems to predict with averages

-trend-following model

-little predictive qualities when it comes to large shifts in momentum

-good at predicting during "steady" times

Drawbacks of the Model

1. **Does Not allow for context:**

-For optimal model, we must know every instance in which fundamental context has influenced a buy or sell explicitly

   (almost impossible to do, needs human mind)

2. **Edge given by the algorithm has probably been eliminated by now**

-weighted-average models are used by many traders so the market has already adapted to eliminate that edge

Importance of Context

Significant moves may happen with or without a reason

With a reason: becomes a <u>fundamental issue:</u>

    -can run time-series or other predictive algorithms to fundamental analysis (GDP, earnings for a company, consumer spending)

Without a reason (on the surface at least): becomes an issue of <u>technicals/quant-focused</u> approaches

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Further Work

1. Delve into the relationships of stocks/commodities with each other

2. Look into factors in the micro-level that might lead to significant price moves in the near-future
   a. Unusual options
   b. The effects of psychology and sentiment of both Wall Street and Main Street

Thank You For Listening!