// FLATIRON SCHOOL

Capstone Project: Forecasting Gold Prices with Univariate Time Series Analysis

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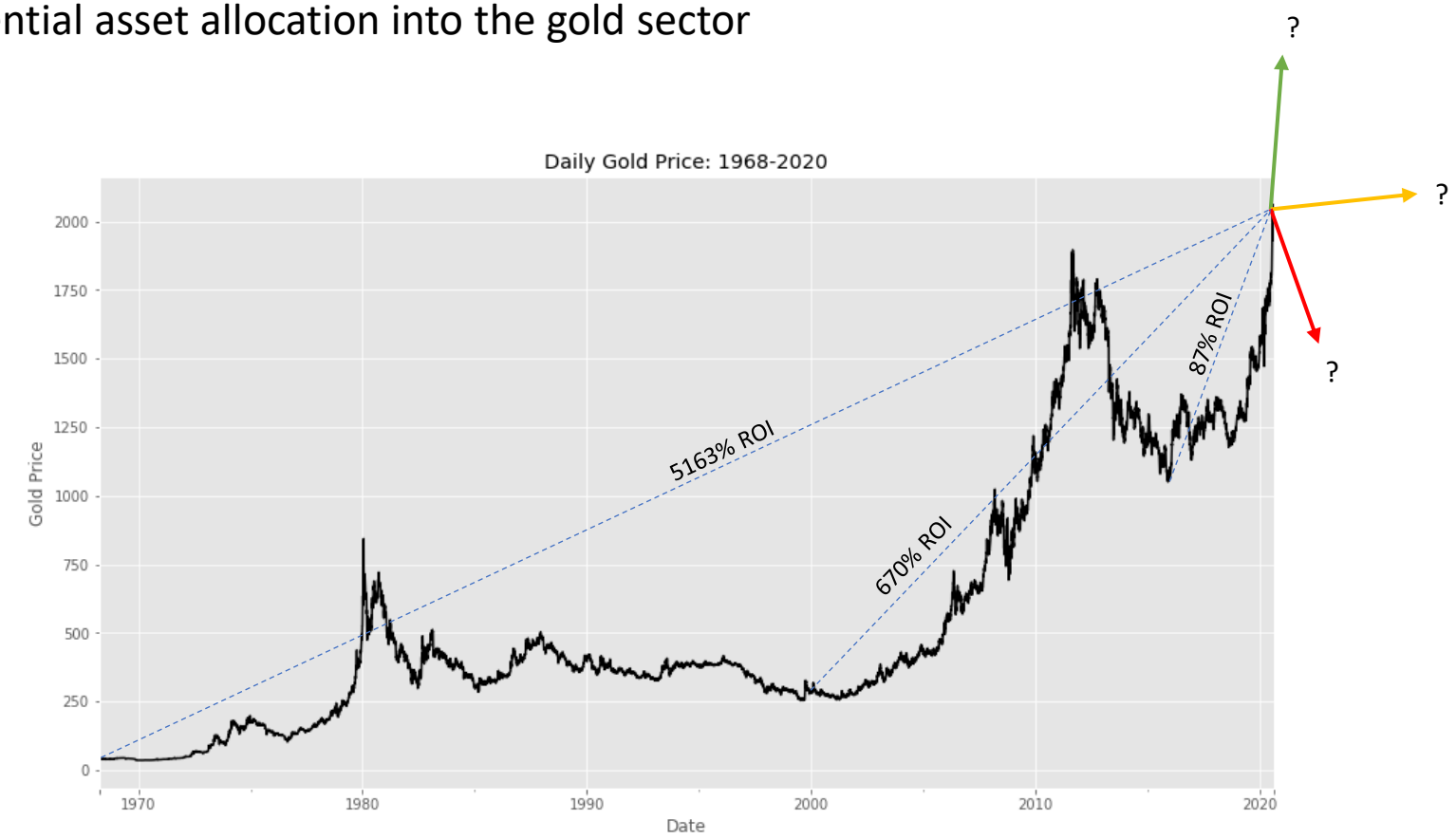
Introduction

Project – Perform time series forecasting on daily gold prices

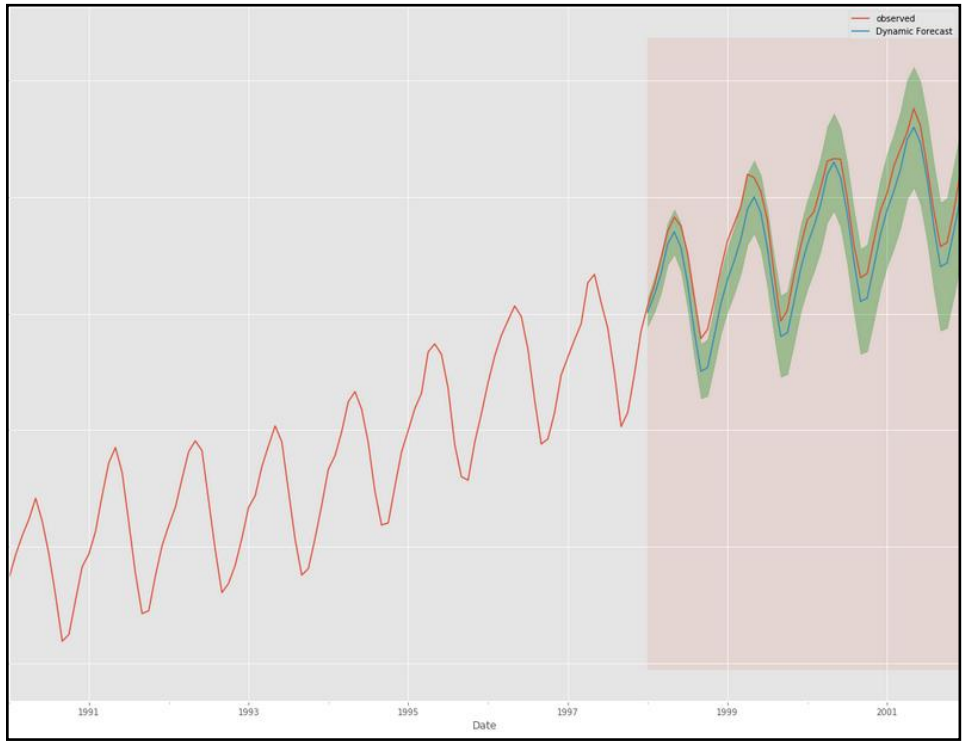
Dataset – [London Bullion Market Daily Gold Price Fix]

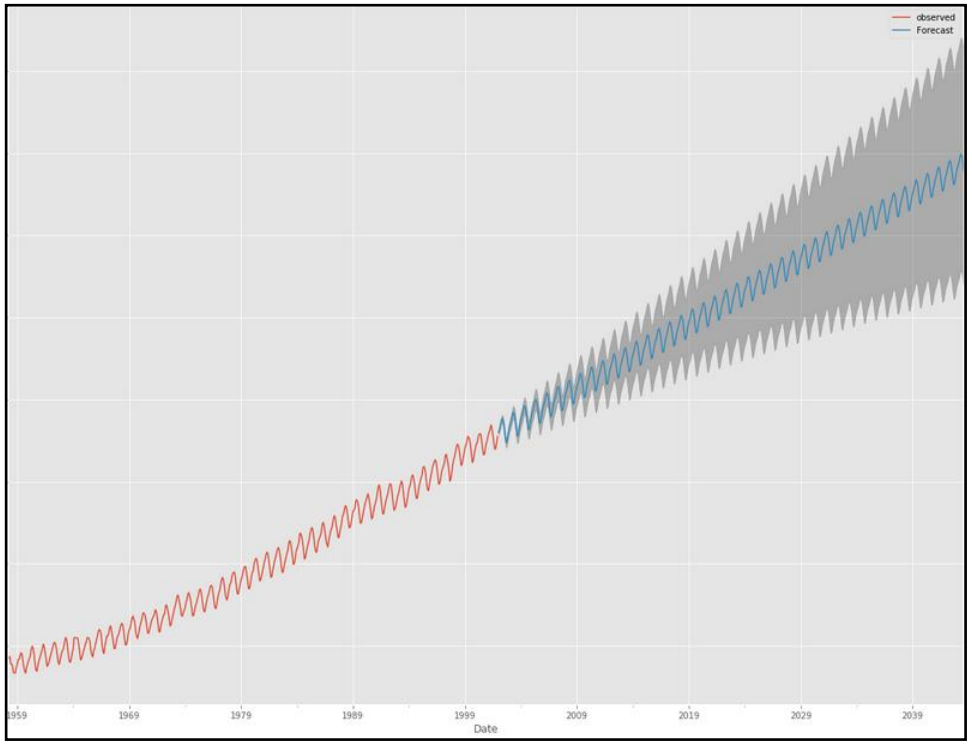
Goal – Provide an investment firm one year future gold prices for risk/reward possibilities of potential asset allocation into the gold sector



Time Series Forecasting Overview

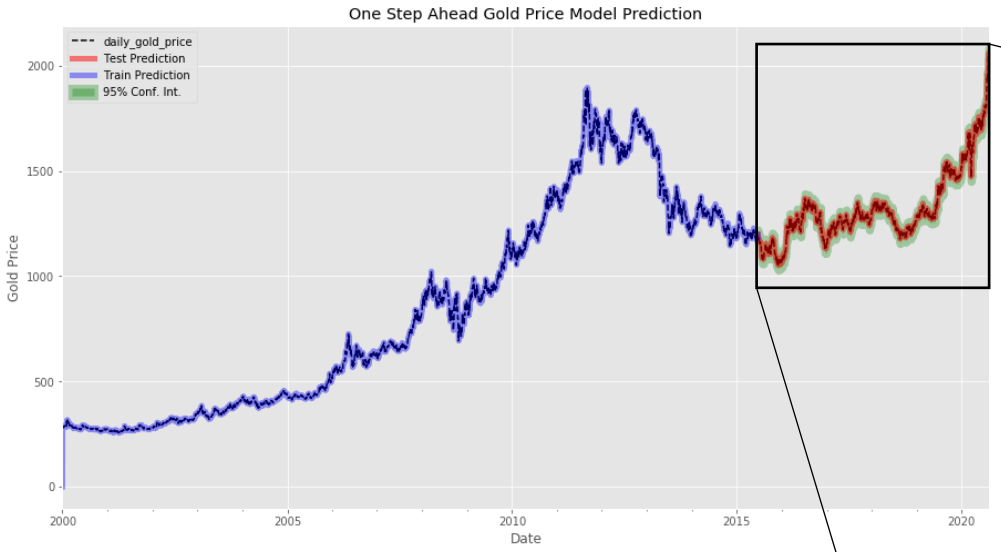
- Use historical gold price data to train a model
- Past prices and trends influence future valuations.
- Evaluate trained model against test data.
- Forecast future gold prices.

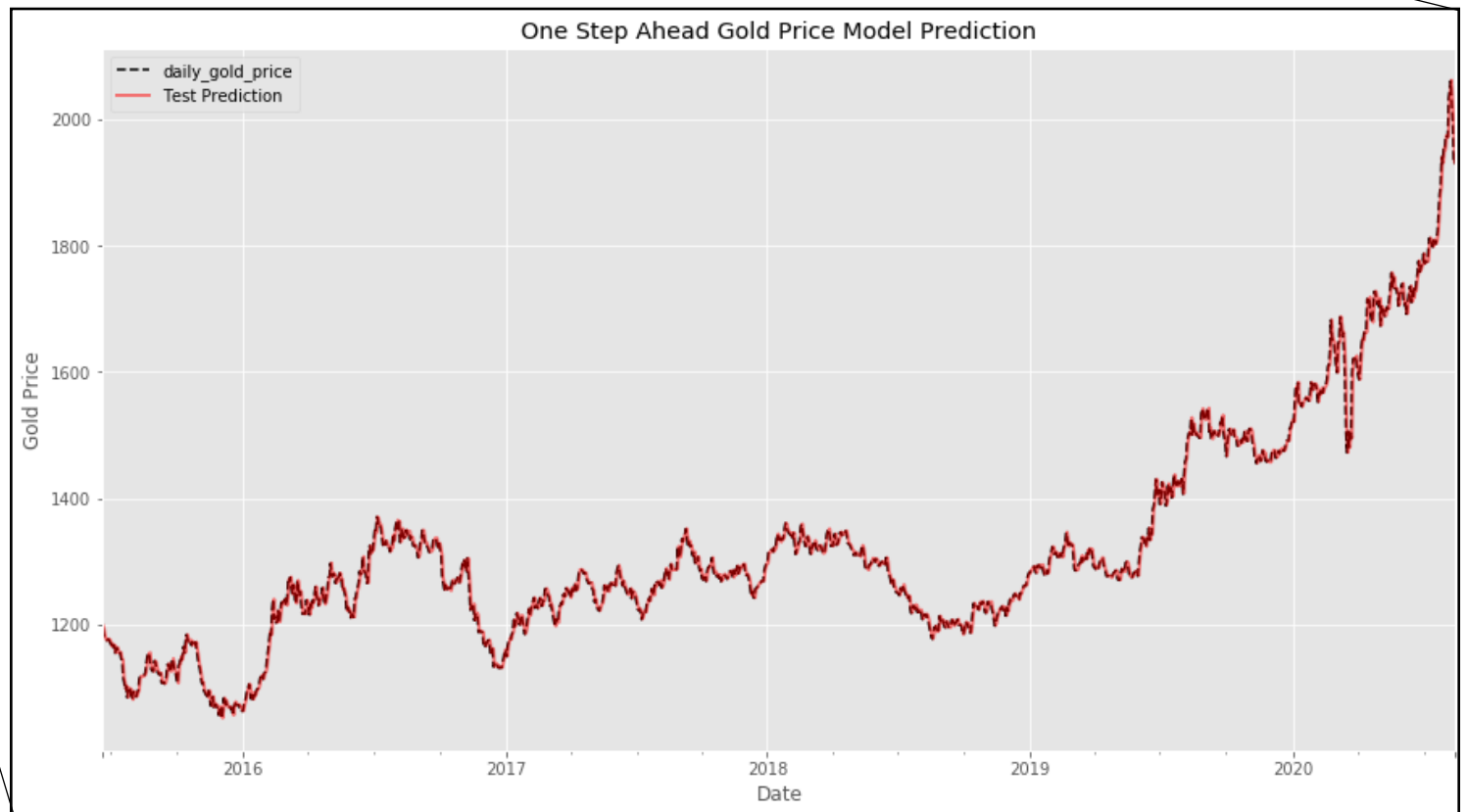




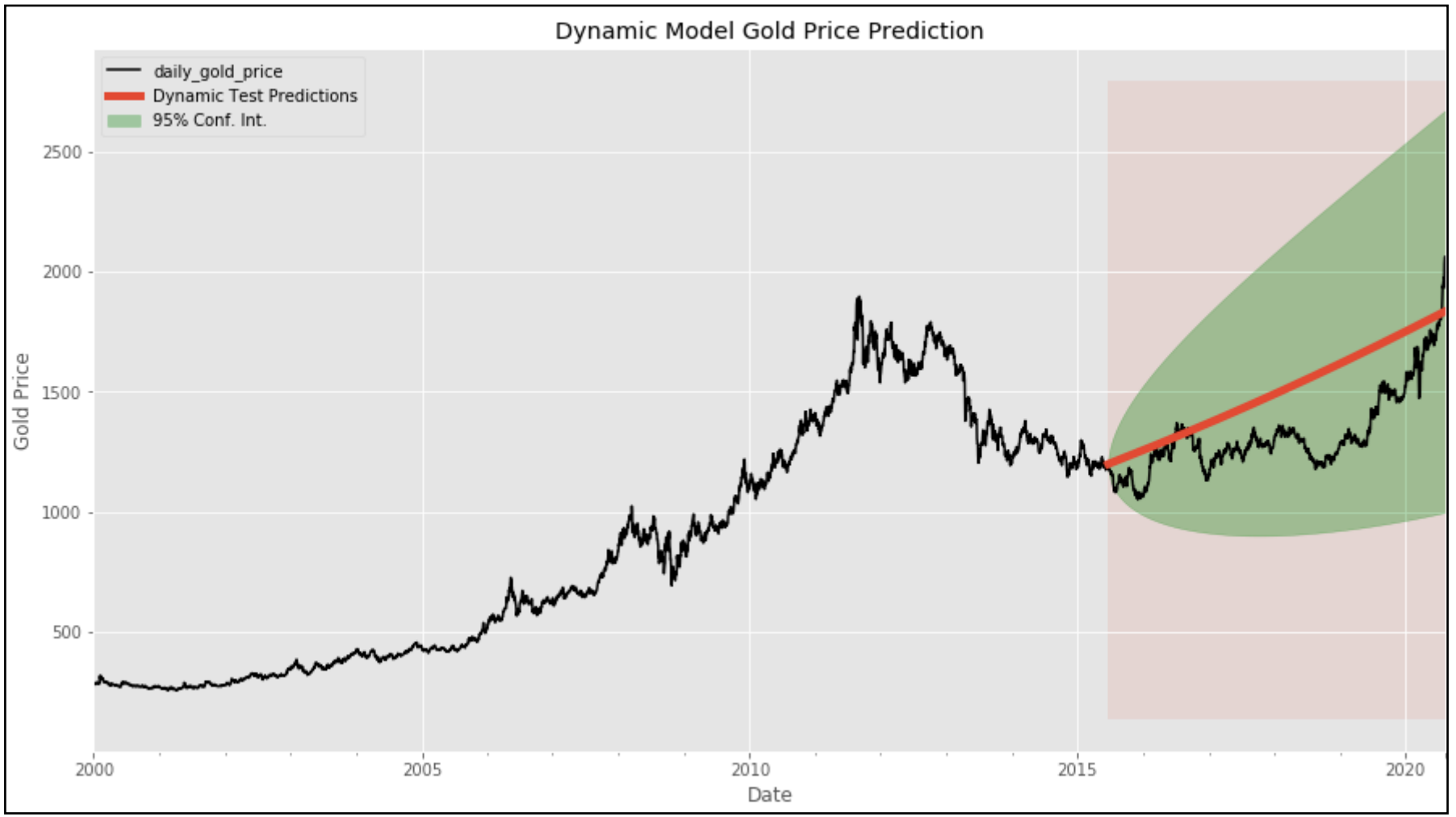
Annual Gold Price Distribution

Initial Modeling Results

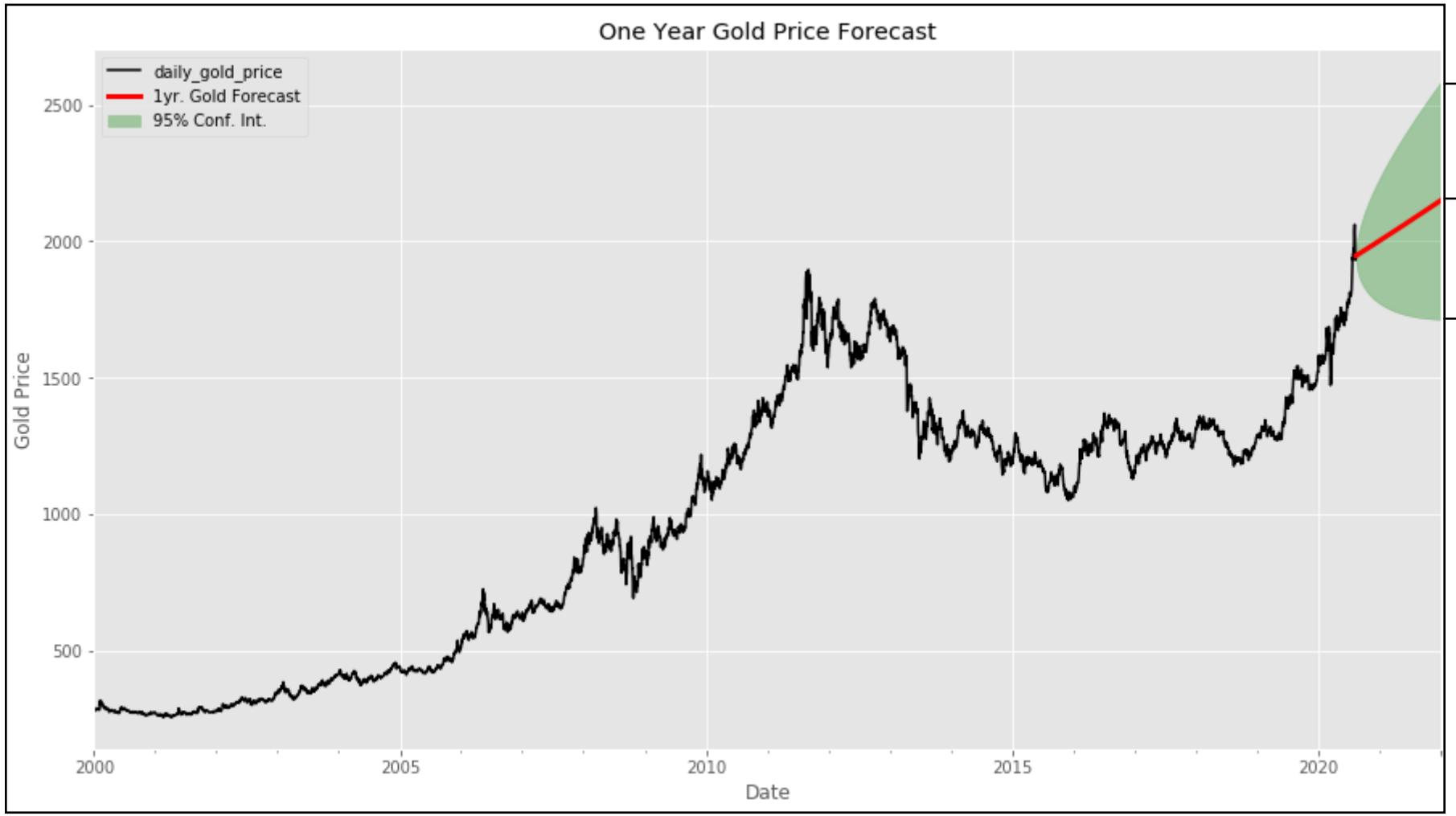




Prediction Results



Forecasting Results



Price - $2588.33
ROI – 32.54%

Price - $2151.50
ROI – 10.17%

Price - $1714.67
ROI – - 12.20%

Conclusions

- Higher upside potential in gold investment, with a lower downside risk with current gold at $1952.48:
    - Lower limit ROI ($1714.67) - -12.2%
    - Average ROI ($2151.50) - 10.17%
    - Upper limit ROI ($2588.33) - 32.54%

- Diversification away from standard equities into gold:
    - hedge against economic volatility
    - dollar devaluation
    - capital preservation
    - substantial gains in ROI

Recommendations and Future Work

- Lack of computing power limited modeling capabilities -
  - Invest in more robust hardware
  - More in depth model exploration with higher complexity

- Models inability to capture volatility –
  - Remodel using different methods
    - ARCH – accounts for volatility
    - Multivariate time series –
      - US Dollar strength
      - Investment demand
      - Economic sentiment
      - Mine supply

- Help with overall accuracy as well as modeling for potentially longer term investments into gold
- Reassess model accuracy as new data are generated

Thank You