QUANT NARRATIVE

The stock price of JPM would be **$115.49**, based on my prediction.

	Method	Prediction	Weight	Final
First Prediction	Tableau "What-If" assignment	178.30	5%	8.92
Second Prediction	Time Series	112.75	35%	39.46
Third Prediction	Linear Regression	116.03	40%	46.41
Fourth Prediction	Random Forest Regression	103.50	20%	20.70
Final Prediction	Weighted	(Avg.) 127.65	100%	**$115.49**

Due to the complications of the date change, I used the beginning of 2020 (01/01/2020) to predict the stock price at the end of 2019 (12/31/2019). Since the variables that formed the model are interest rate, GDP, unemployment rate, CPI, etc., which can hardly change in one day, I believe these data would not interfere much for my final prediction.

Furthermore, because most of my indicators are recorded monthly, I used interpolation to better fit the model. Since all of them are rates, I applied the same number to the entire month/quarter. The data sources and the research I used are the followings:
- GDP (*https://fred.stlouisfed.org/series/CPIAUCSL*)
- Interest Rate (*https://fred.stlouisfed.org/series/FEDFUNDS*)
- Inflation Rate (*https://fred.stlouisfed.org/series/T10YIE*)
- Unemployment Rate (*https://fred.stlouisfed.org/series/UNRATE*)
- Consumer Interest (*https://fred.stlouisfed.org/series/CPIAUCSL*)
- What factors are the primary drivers of banks' share prices? (*https://www.investopedia.com/ask/answers/041015/why-trading-volume-important-investors.asp*)

During the process, I noticed that some of the variables have very strong correlations, in order to avoid multicollinearities, I only used interest rate, unemployment rate, and GPD, as I detailly listed in Submission #02.

In order to conduct the prediction, I analyzed their seasonality and used the time series to project the followings:
- EFF Rate: 3.67,
- GDP: 19103.78,
- Unemployment Rate: 3.34.

Among all, the unemployment rate has a very strong negative relationship with JPM's stock price.

Since the linear regression model yields a R-squared of 0.988, I weighted it the most for the final prediction. Stock price has quite a strong seasonality, so I weighted the Time Series Model the second.