

Nvidia Stock Prediction with Time Series Models

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Business Problem & Overview

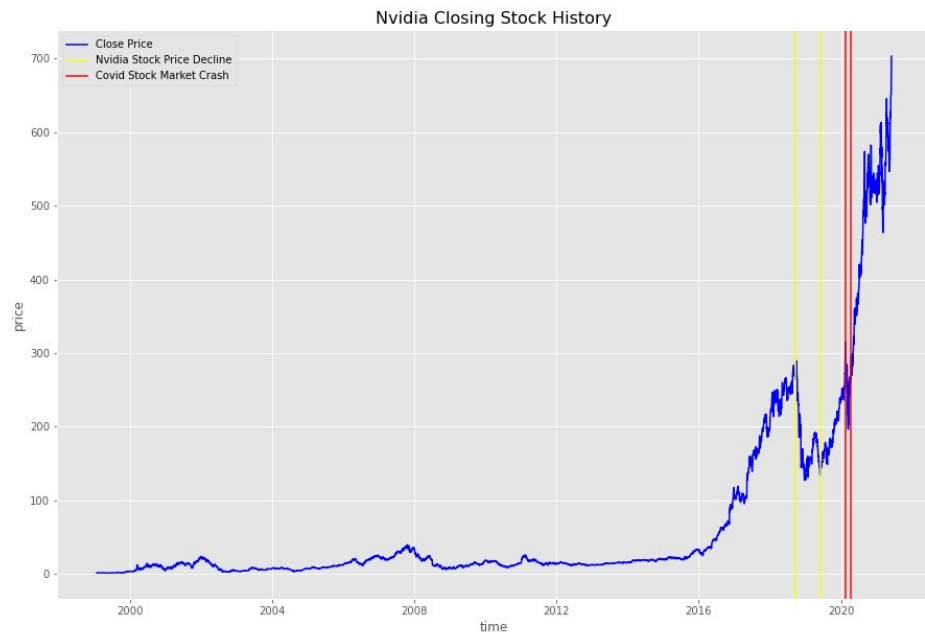
Business problem

2021 is called the year of cryptocurrency. The popularity of cryptocurrency caused a shortage in the graphics card market. At the same time, it leads increasing of stock price of a graphics card supplier, Nvidia. This project aims to provide an updated time series forecasting for investment banks to predict better Nvidia future stock price.

Overview

Nvidia closing stock price is main dependent variable which predicted in this project, and AMD previous day closing stock price, Google trend data, graphics card market share, and Nvidia Earnings Date, Estimates & History were chosen for exogenous variables. For time series forecasting model, ARIMA and ARIMA with exogenous variables were tested on daily closing price of Nvidia.

Data - Nvidia Closing Stock History



09/16/2018 ~ 06/01/2019

- Slowing global economy
- Trade war
- Poor future expectation

02/20/2020 ~ 04/07/2020

- 2020 stock market crash

Data - Exogenous Variables

Exogenous Variables

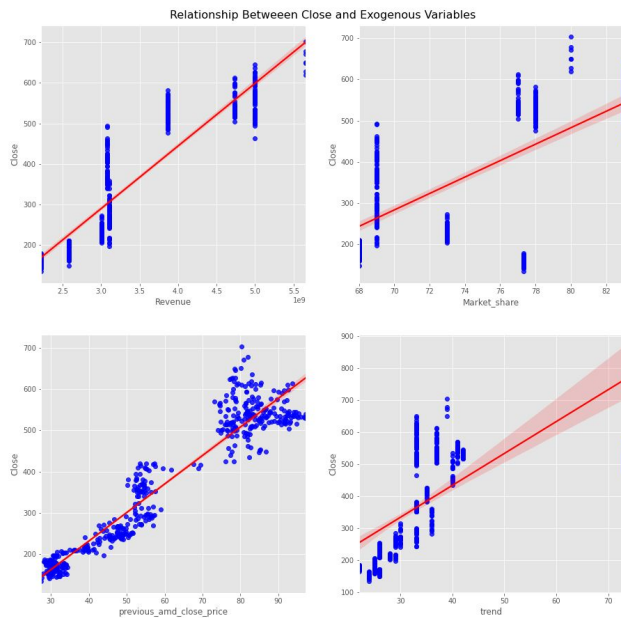
Positive Relationship

Revenue

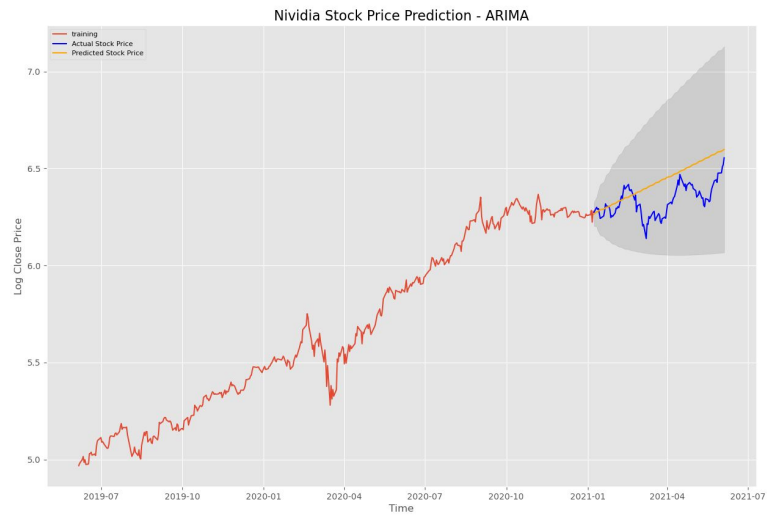
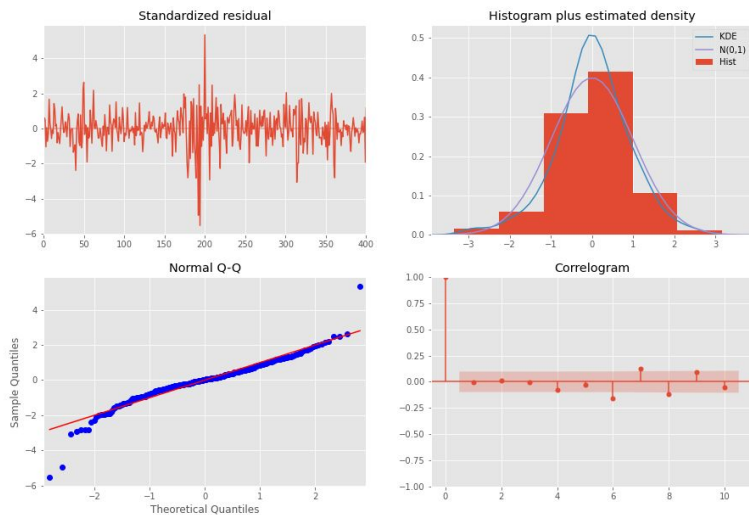
GPU Market share

Previous day AMD stock close

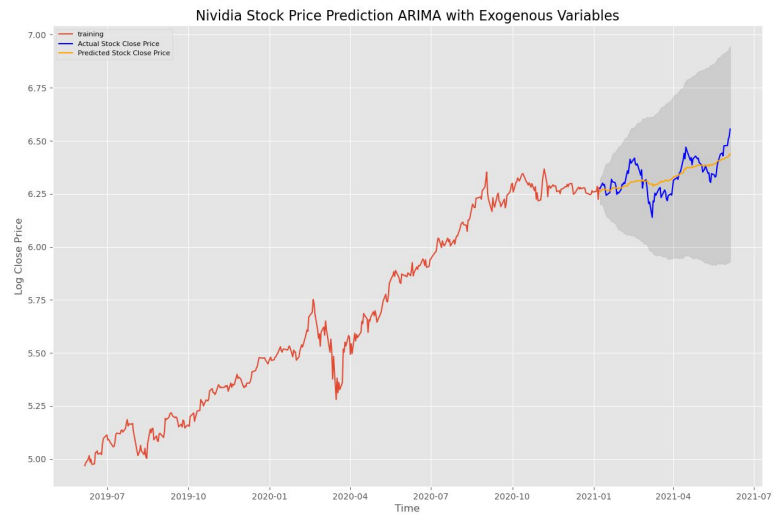
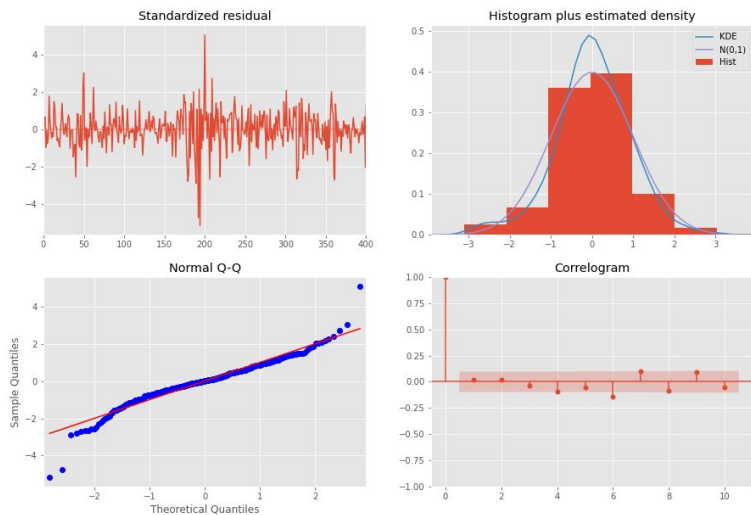
Google trend



Model 1 - ARIMA



Model 2 - ARIMA with Exogenous Variables



Conclusion

Model Compare(*Best model)

	ARIMA	ARIMA with Exogenous Variables
RMSE	0.13	0.05
%RMSE	0.0203	0.0086

Conclusion

- I chose ARIMA with Exogenous Variables model because its RMSE is higher than ARIMA model.
- The project will help investment banks to predict Nvidia's future stock prices.

Next Step

- Find other independent variables which can make our model more accurately
- Find different method of data cleaning
- Find the way to improve precision from our final model