

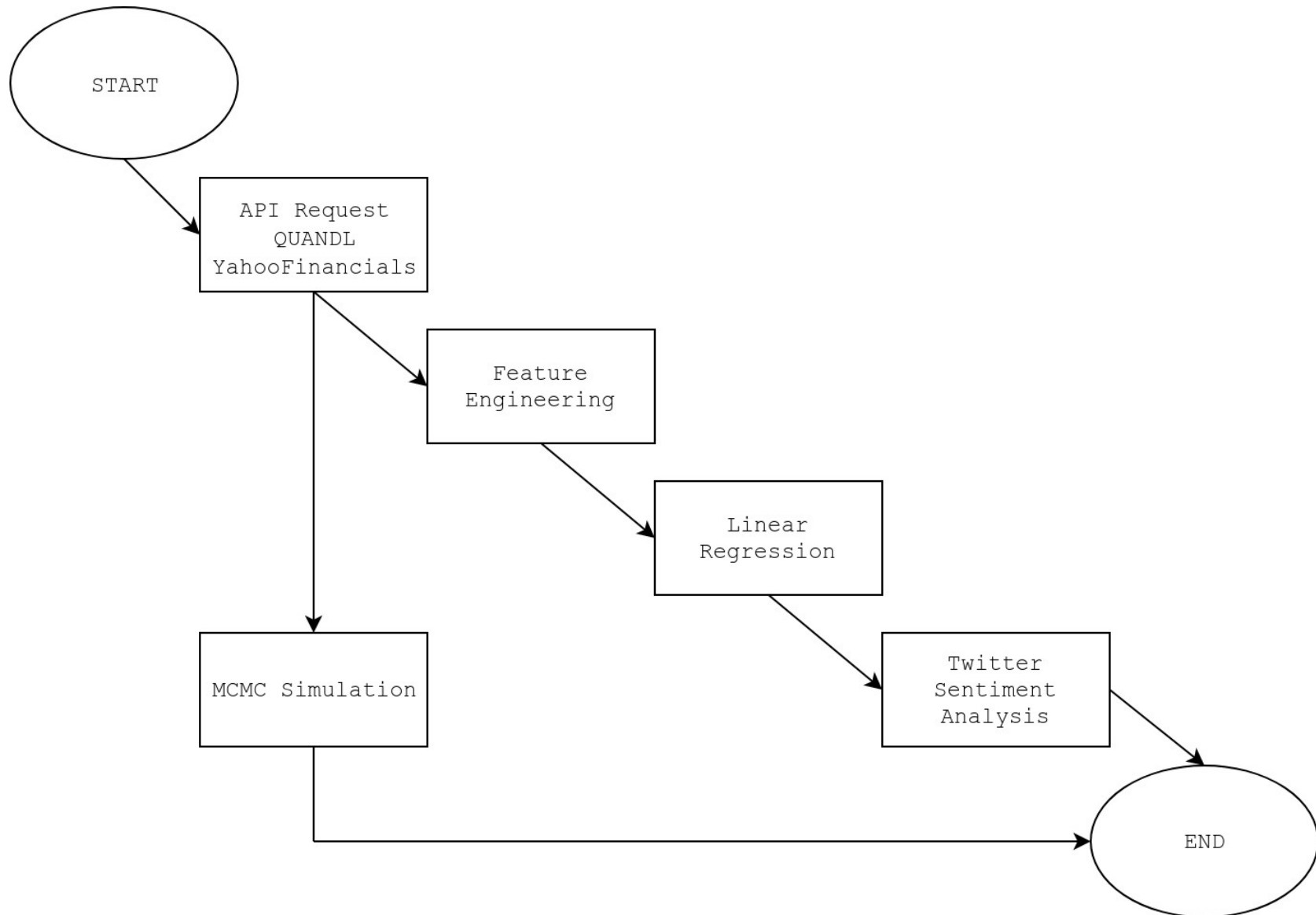
# Stock Prediction

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IronHack Data 04-2019

**Final Project**

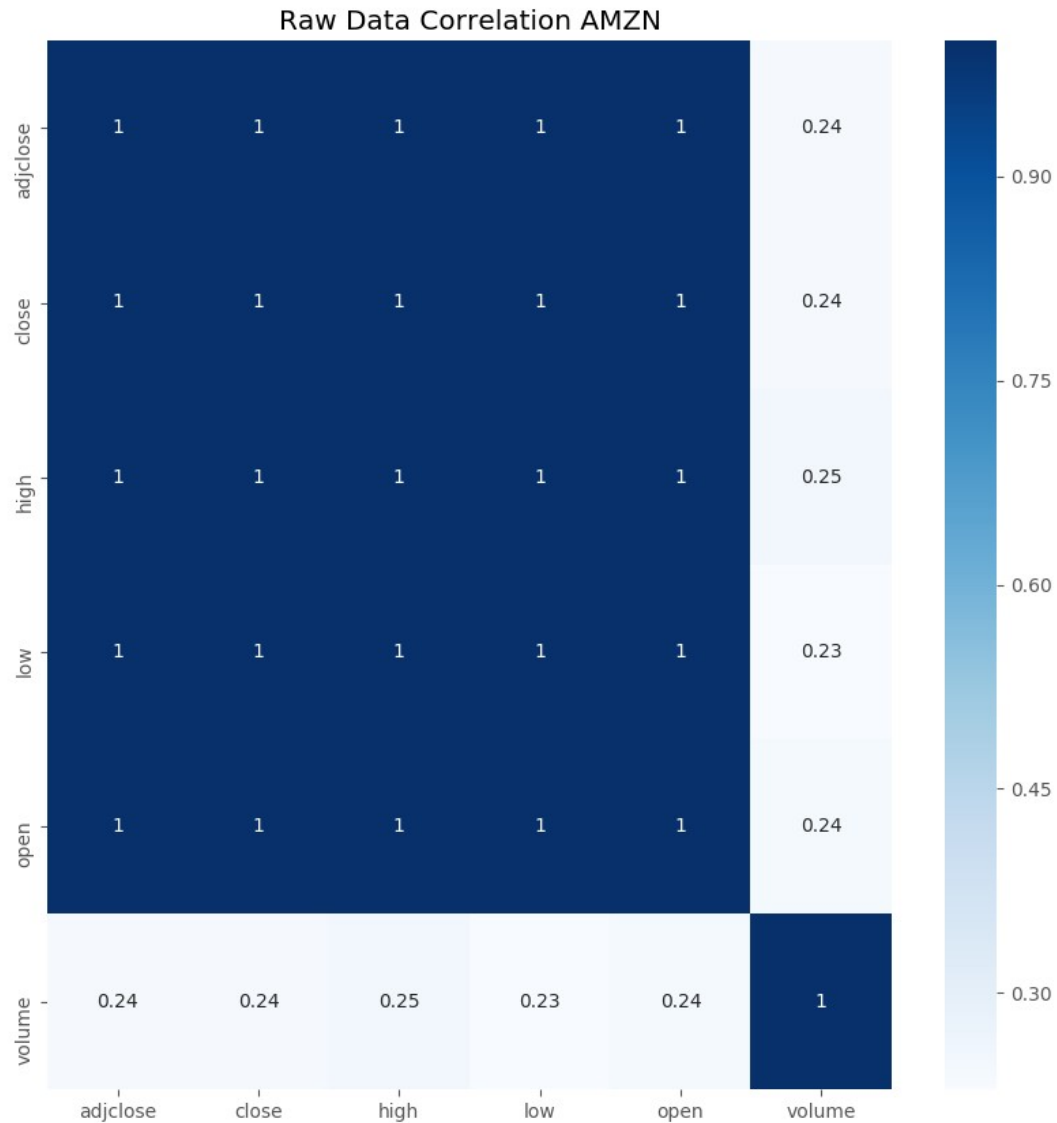
# Project Pipeline



# Raw Features

## Columns:

adjclose  
close  
high  
low  
open  
volume  
Date



# Feature Engineering

## Columns:

Adj\_Close

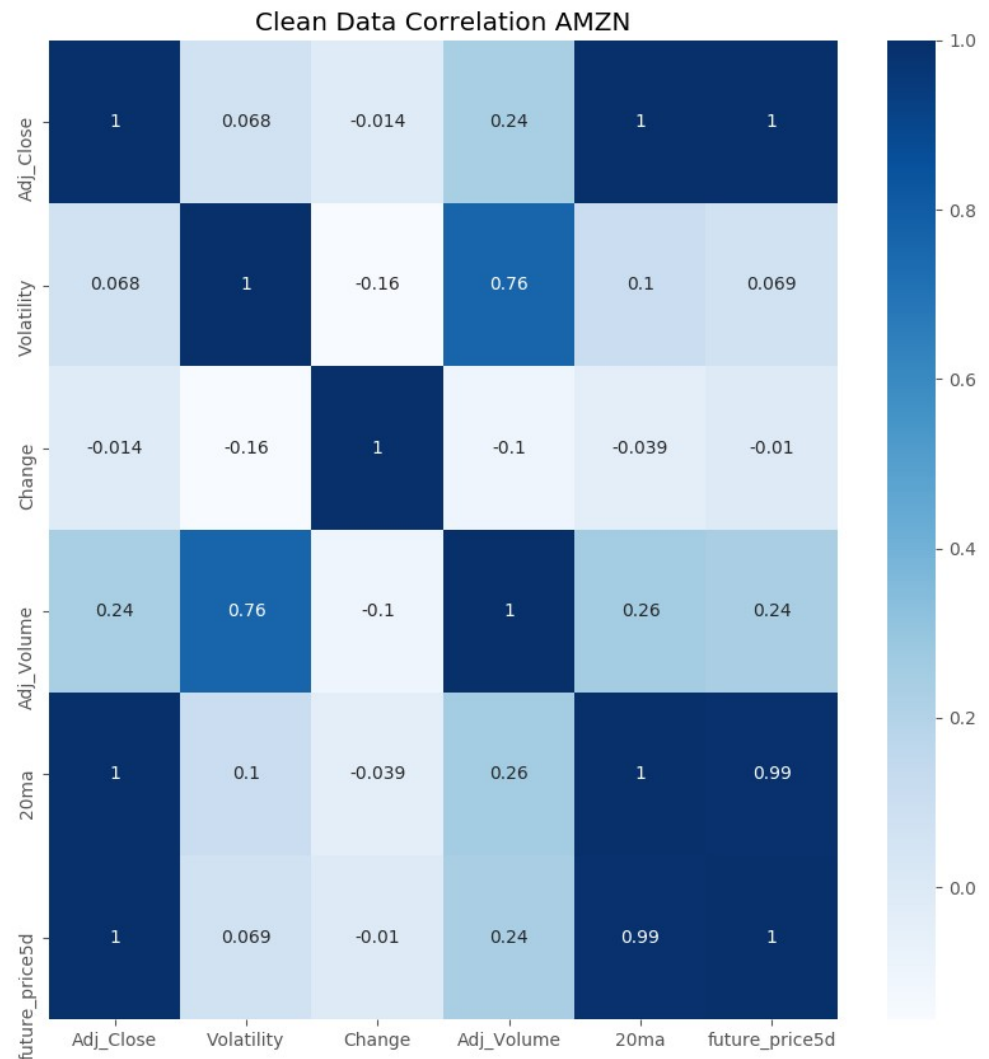
Volatility

Change

Adj\_Volume

20ma

future\_price5d



# Machine Learning

## Linear Regression

\*\*\* SCORE \*\*\*

Boeing: 95.61%

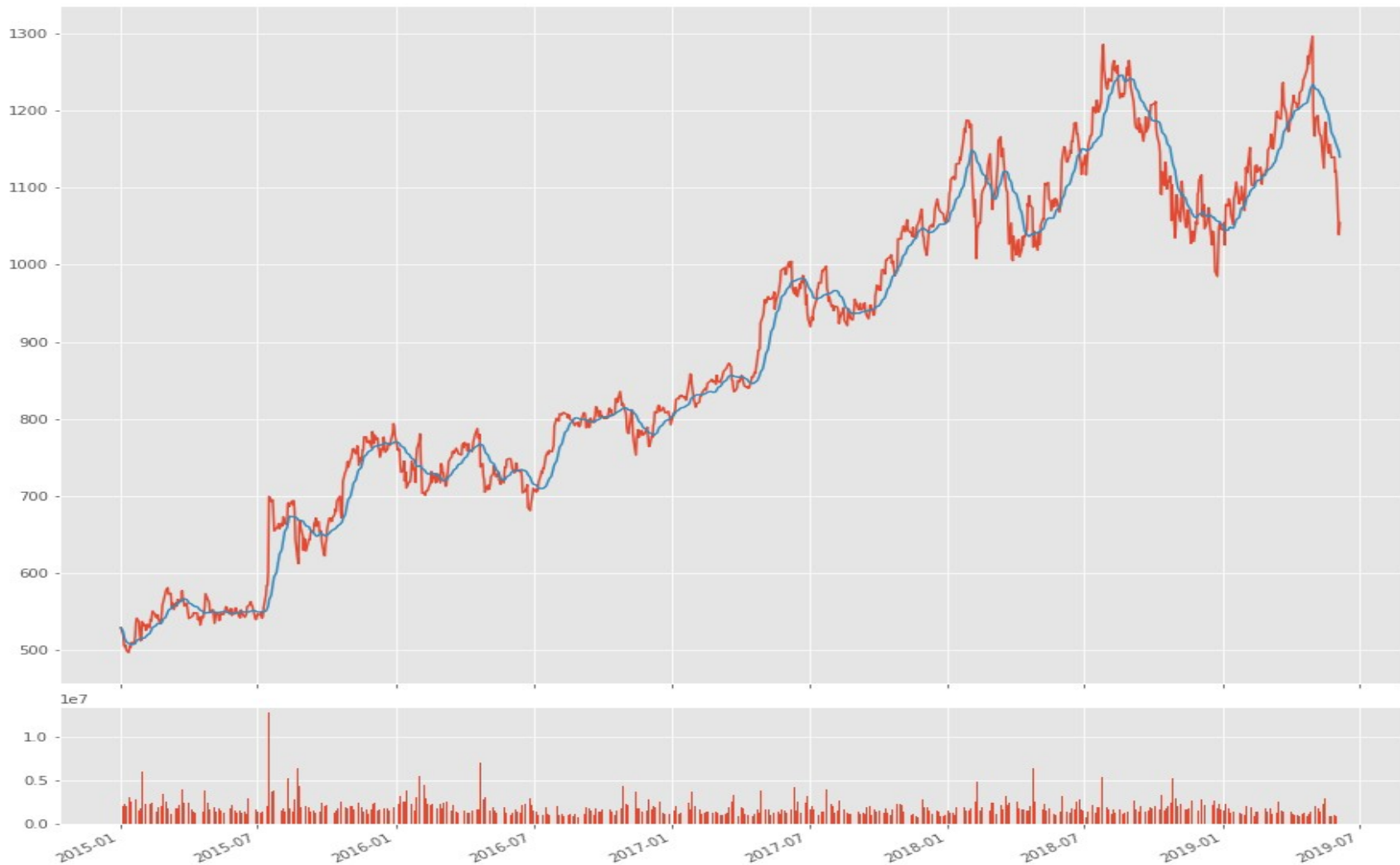
Apple: 87.87%

Google: 71.07%

Amazon: 79.68%

# Stock Time-series

GOOGL Stock Price



# Predictions

## Apple

Date	Prediction
07/06/2019	176.14
10/06/2019	173.11
11/06/2019	172.82
12/06/2019	178.04
13/06/2019	182.50

## Boeing

Date	Predicted	Real
29/12/2017	289.98	286.14
02/01/2018	290.09	288.02
03/01/2018	290.41	288.95
04/01/2018	290.76	287.85
05/01/2018	291.56	299.66

# Twitter Sentiment Analysis

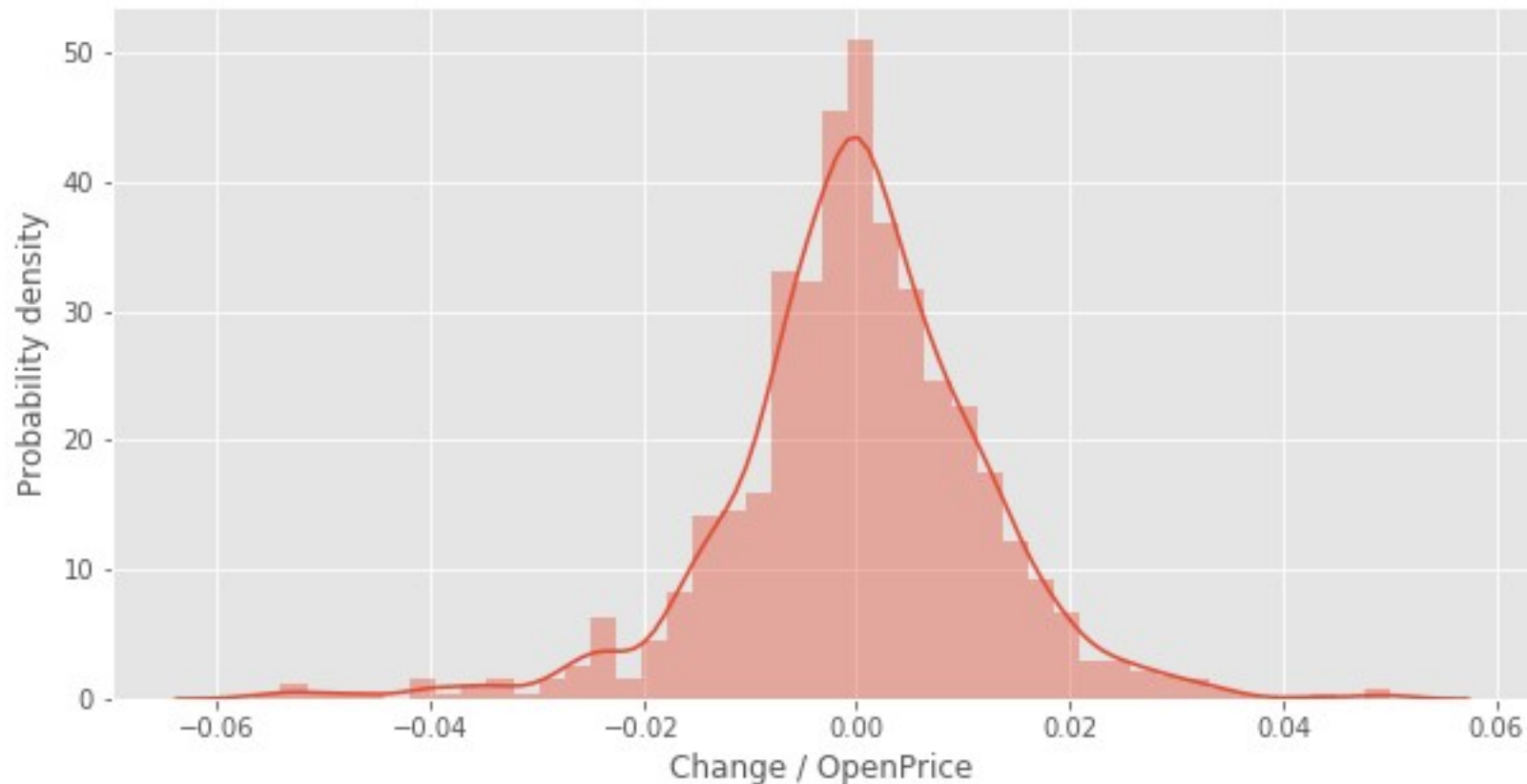
Predictions			Tweets	Sentiment
2019-05-26	Unknown	RT @stannabozny: The Big Five #FAANG Stock and...		0
2019-05-27	Unknown	RT @mstradingcoach: Is TRADING TILT effecting ...		0.139024
2019-05-28	Unknown	Tomorrow the market will be...\n\n#es_f #spy #...		0
2019-05-29	1126.97	RT @MysteryTrader99: #GOOGL Daily: \$GOOGL ABC ...		0.291016
2019-05-30	1131.22	.@YouTube has 37% of global download mobile in...		0.0214286
2019-05-31	1114.66	I think @Google is making a fundamental mistak...		0
2019-06-01	Unknown	Google's activities under scrutiny by US, Euro...		0.2125
2019-06-02	Unknown	The #AppleBank #GoogleBank #AmazonBank are com...		0.5
2019-06-03	1044.37	Congress launches Big Tech antitrust probe \$GO...		0.0748677
2019-06-04	1064.03	RT @TradingTilt: Is TRADING TILT effecting you...		0.0433081



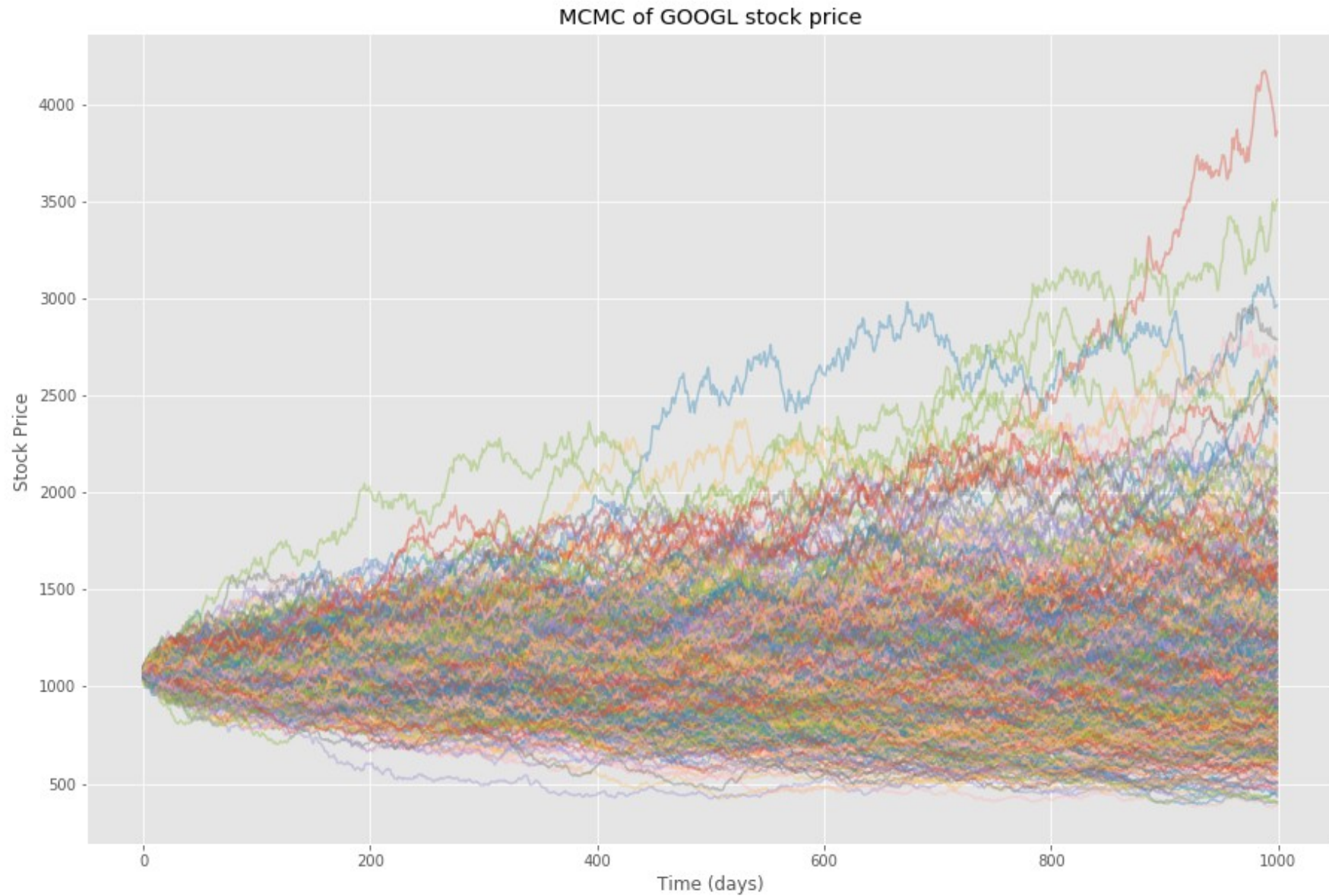
# Markov Chain Monte Carlo

## Stock Change Behaviour

Histogram of GOOGL stock change ratio:  
 $\mu = 3.88e - 05$ ,  $\sigma = 0.012$

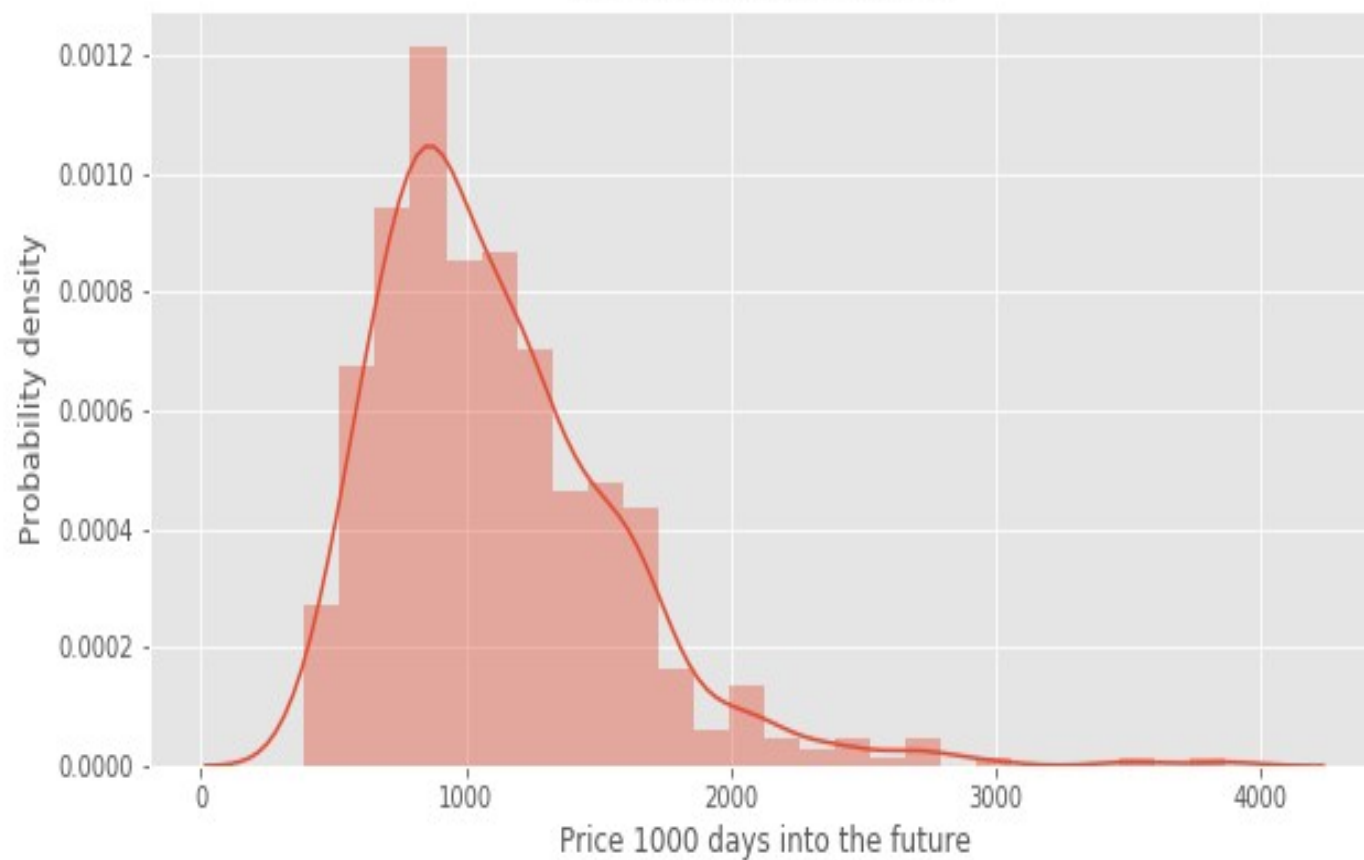


# MCMC Scenarios



# MCMC Insights

Histogram of GOOGL future price :  
 $\mu = 1113.95$ ,  $\sigma = 461.97$



Min. Price	
Probability	
1.0	-inf
0.9	536.957213
0.8	723.644560
0.7	858.259271
0.6	973.282579
0.5	1080.792098
0.4	1188.301617
0.3	1303.324924
0.2	1437.939636
0.1	1624.626983

# Conclusions

- Stock prediction is inconsistent
- Great practice of acquired skills
- MCMC provides real insight on the future and ther risk of investing
- Feature Engineering skyrockets the model's accuracy