StockAnalysis

August 17, 2018

0.1 Basic Stock Analysis

Bryant Crocker In order to pull in daily stock prices I will use the ffn library. The ffn library pulls in data from yahoo finance. I will start on the first of Janauary 2010. A few years after the 2008 recession.

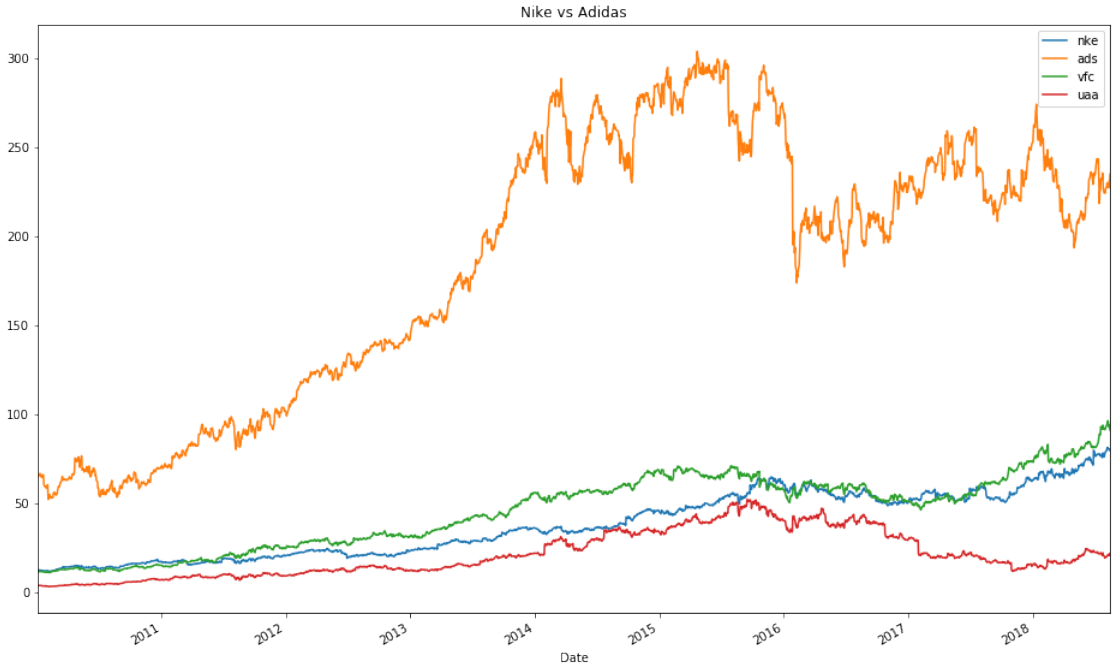
I am looking at:

- Under Armour - UAA
- Nike - NKE
- Adidas - ADS
- Vans Footwear Company - VFC

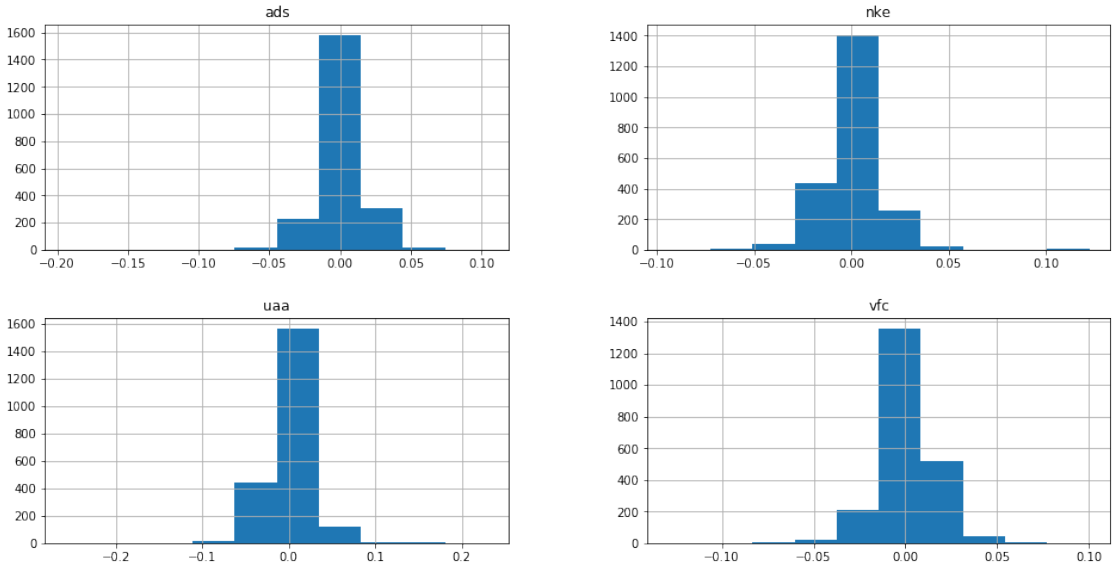
Out[46]:

Date	nke	ads	vfc	uaa
2010-01-04	12.217500	64.652290	11.234499	3.51000
2010-01-05	12.266110	64.779861	11.448840	3.61500
2010-01-06	12.191328	65.103653	11.402914	3.69500
2010-01-07	12.310980	65.702194	11.623373	3.65125
2010-01-08	12.286675	66.408684	11.562134	3.64375

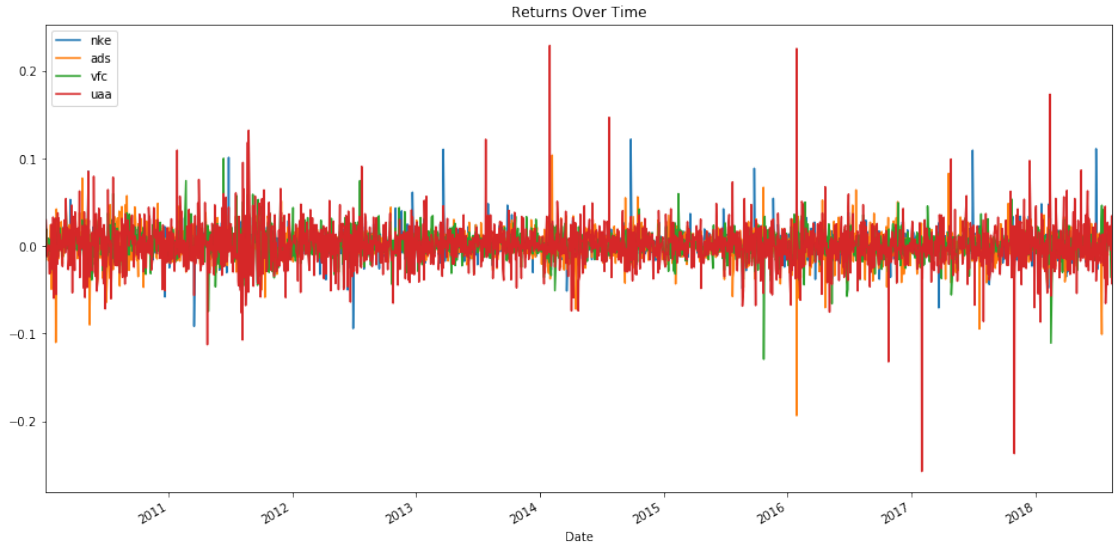
A simple plot of historical prices. Their seems to be a fair deal of variabilty around the price of Adidas.



Under armour has the highest returns on average. Note that the x-axis of the histograms are not on the same scale.




```
Out[9]: nke     0.000976
        ads     0.000742
        vfc     0.001079
        uaa     0.001160
        dtype: float64
```



1 Forecasts:

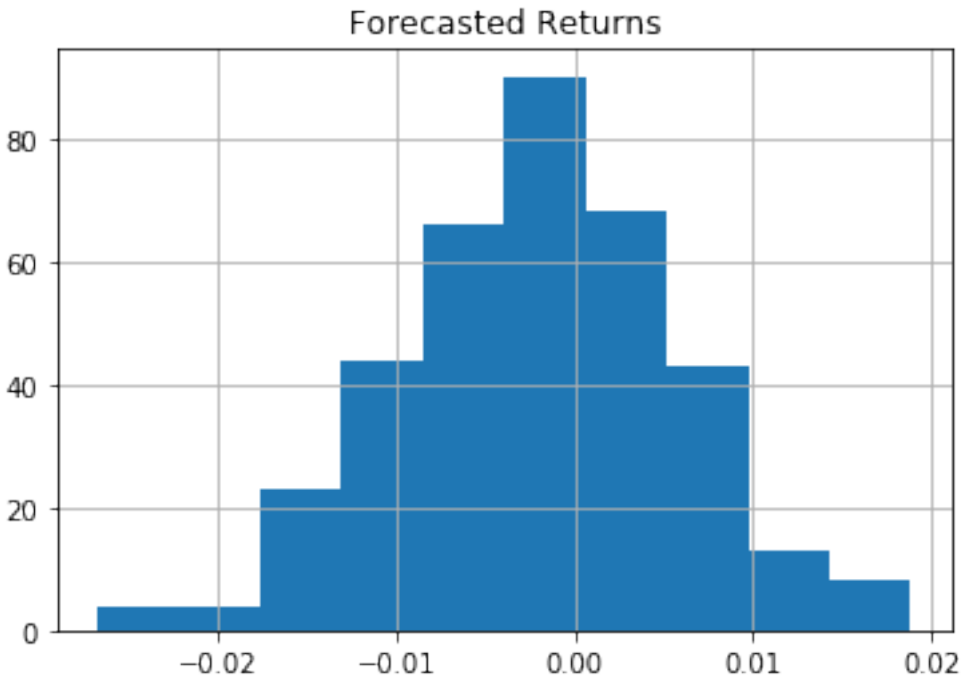
To forcast future closing values of the selected securities, I will use the Facebook's *prophet* forecasting api. Prophet fits a general additive model using time series data.

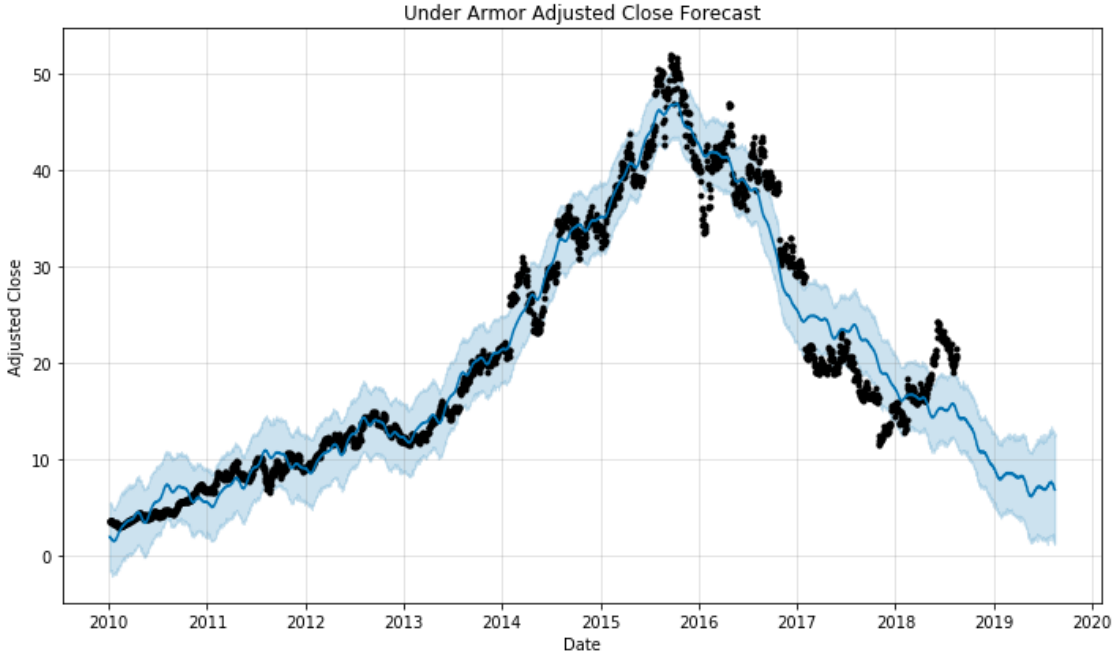
1.1 Under Armor

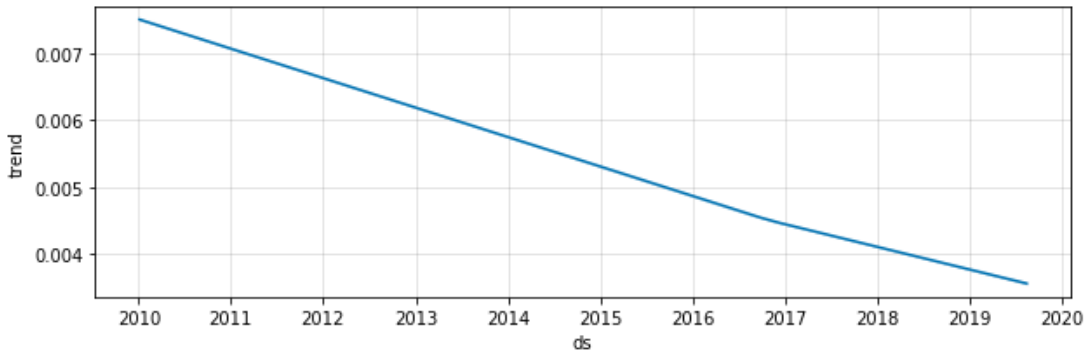
```
INFO:fbprophet.forecaster:Disabling daily seasonality. Run prophet with daily_seasonality=True
```

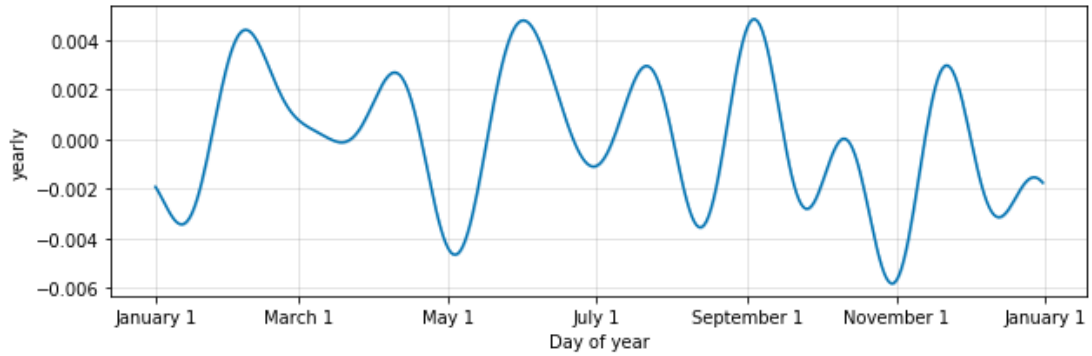
Out[41]:

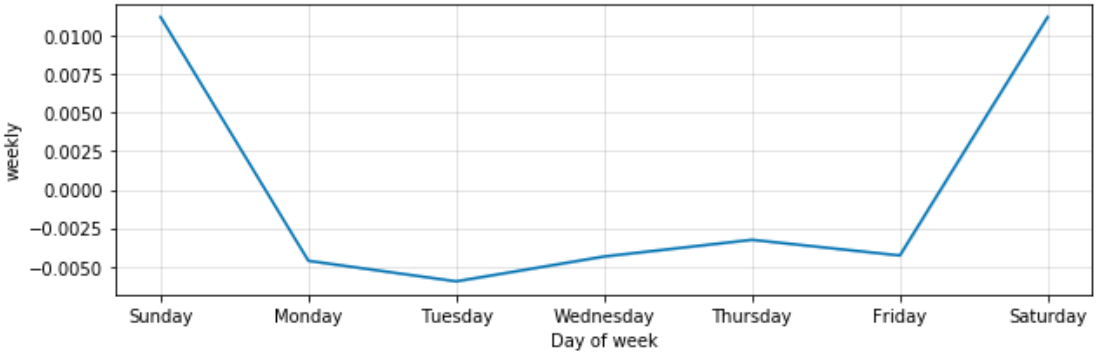
	ds	yhat	yhat_lower	yhat_upper
2531	2019-08-12	7.199764	1.366720	12.644800
2532	2019-08-13	7.065798	1.422699	12.593406
2533	2019-08-14	6.988523	1.201404	12.945474
2534	2019-08-15	6.972645	1.328302	12.429903
2535	2019-08-16	6.893145	1.337763	12.725954

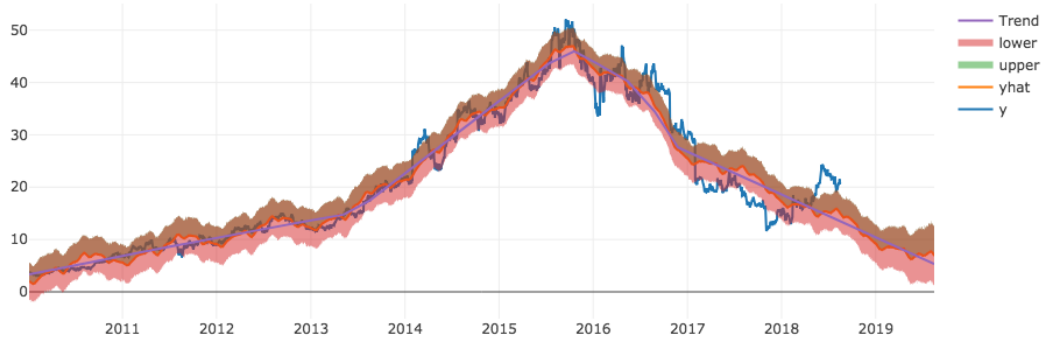

Forecasted Returns
80
60
40
20
0
−0.02
−0.01
0.00
0.01
0.02


Under Armor Adjusted Close Forecast
Adjusted Close
50
40
30
20
10
0
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
Date


trend
0.007
0.006
0.005
0.004
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
ds


yearly
0.004
0.002
0.000
−0.002
−0.004
−0.006
January 1
March 1
May 1
July 1
September 1
November 1
January 1
Day of year


weekly
0.0100
0.0075
0.0050
0.0025
0.0000
−0.0025
−0.0050
Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Day of week

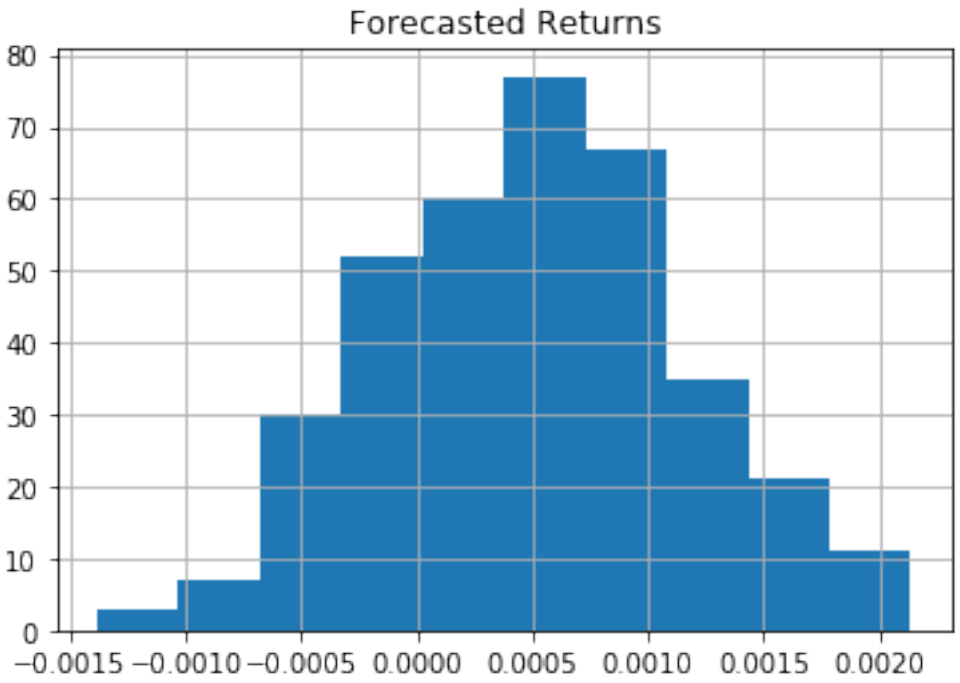


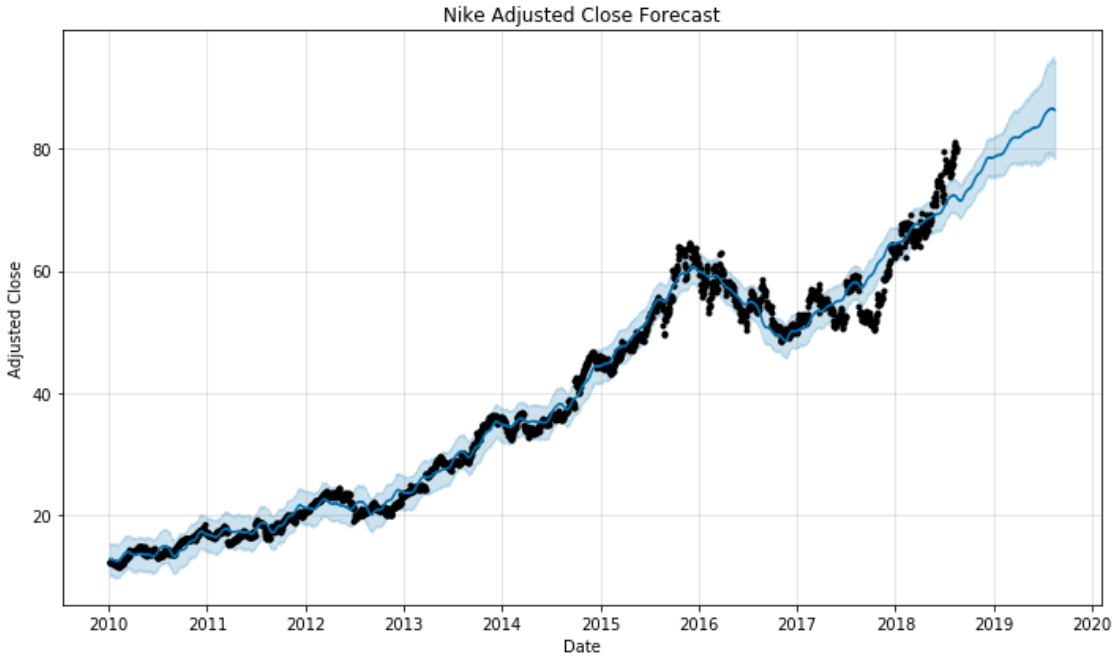
2 Nike Forecast

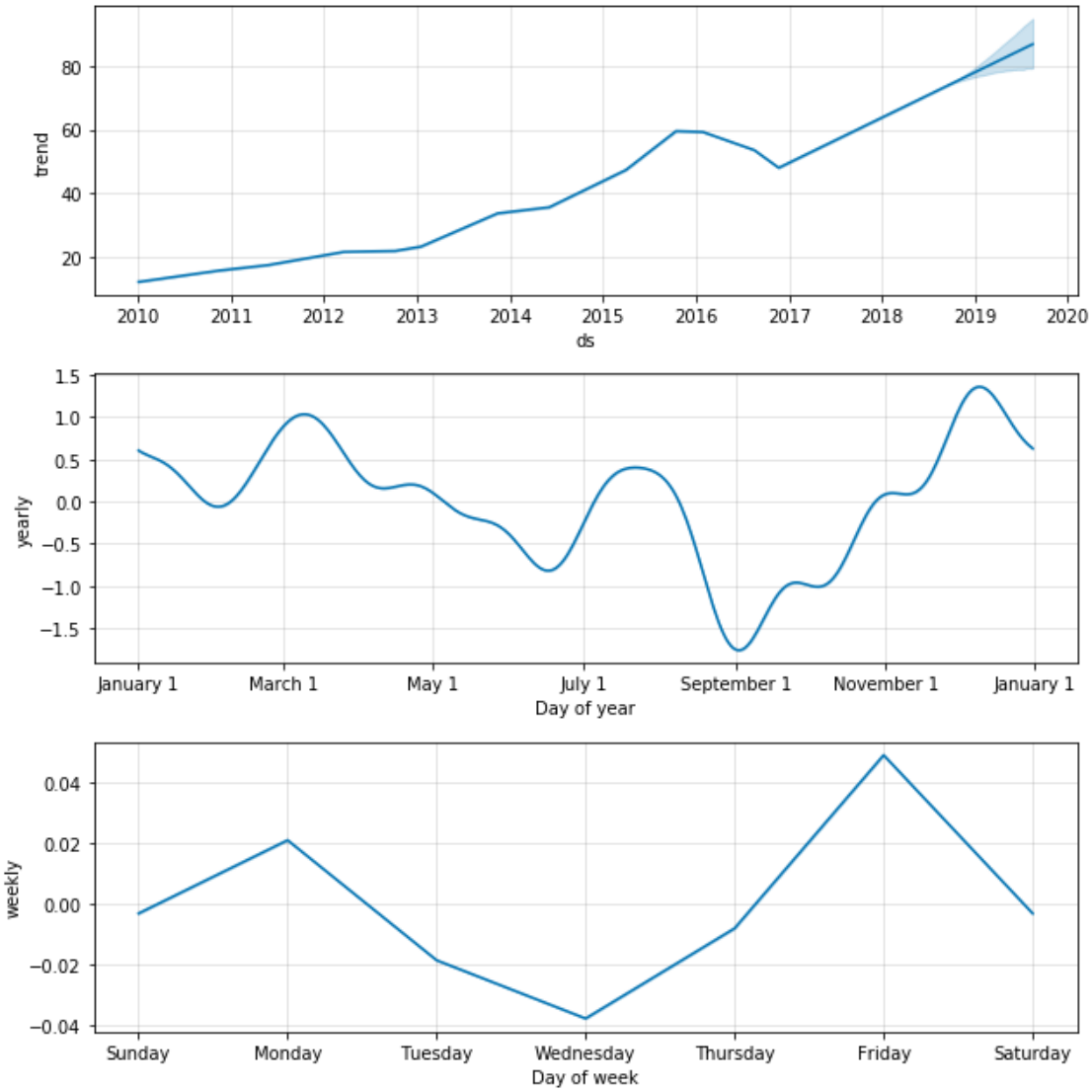
```
INFO:fbprophet.forecaster:Disabling daily seasonality. Run prophet with daily_seasonality=True
```

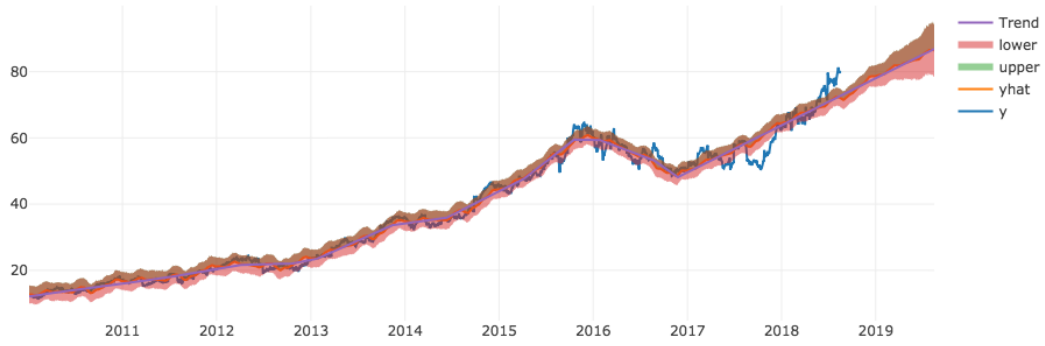
Out[17]:

	ds	yhat	yhat_lower	yhat_upper
2531	2019-08-12	86.565791	78.400229	94.900681
2532	2019-08-13	86.485883	78.932840	94.186121
2533	2019-08-14	86.421228	78.593322	94.596662
2534	2019-08-15	86.400944	78.448677	94.286317
2535	2019-08-16	86.404088	78.592350	94.527547


Forecasted Returns
80
70
60
50
40
30
20
10
0
−0.0015
−0.0010
−0.0005
0.0000
0.0005
0.0010
0.0015
0.0020


Nike Adjusted Close Forecast
Adjusted Close
80
60
40
20
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
Date


trend
80
60
40
20
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
ds
yearly
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
January 1
March 1
May 1
July 1
September 1
November 1
January 1
Day of year
weekly
0.04
0.02
0.00
−0.02
−0.04
Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Day of week

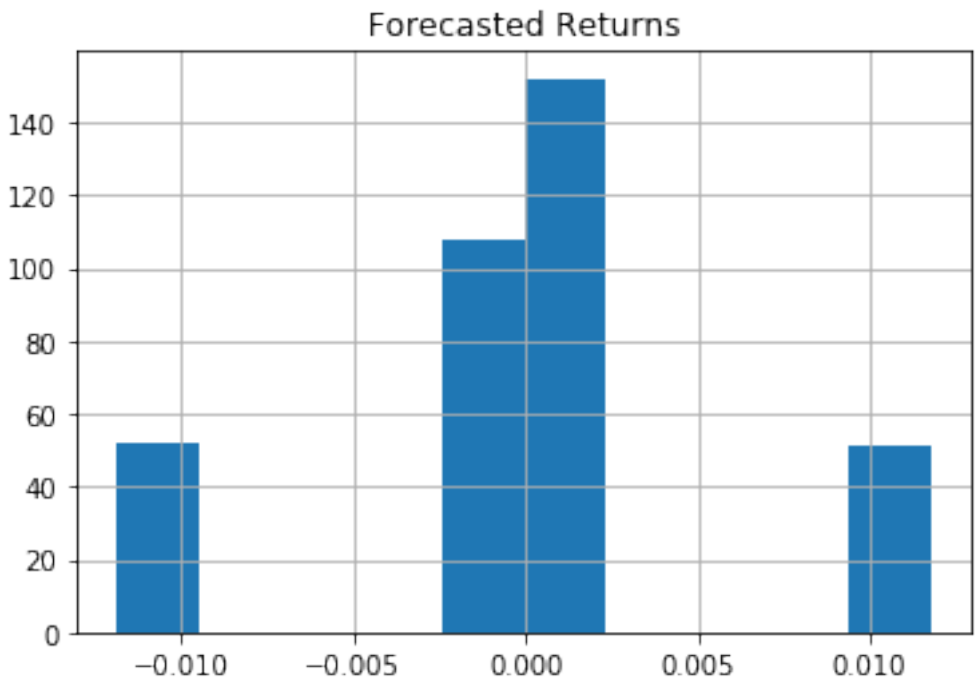


3 Adidas Forecast

```
INFO:fbprophet.forecaster:Disabling daily seasonality. Run prophet with daily_seasonality=True
```

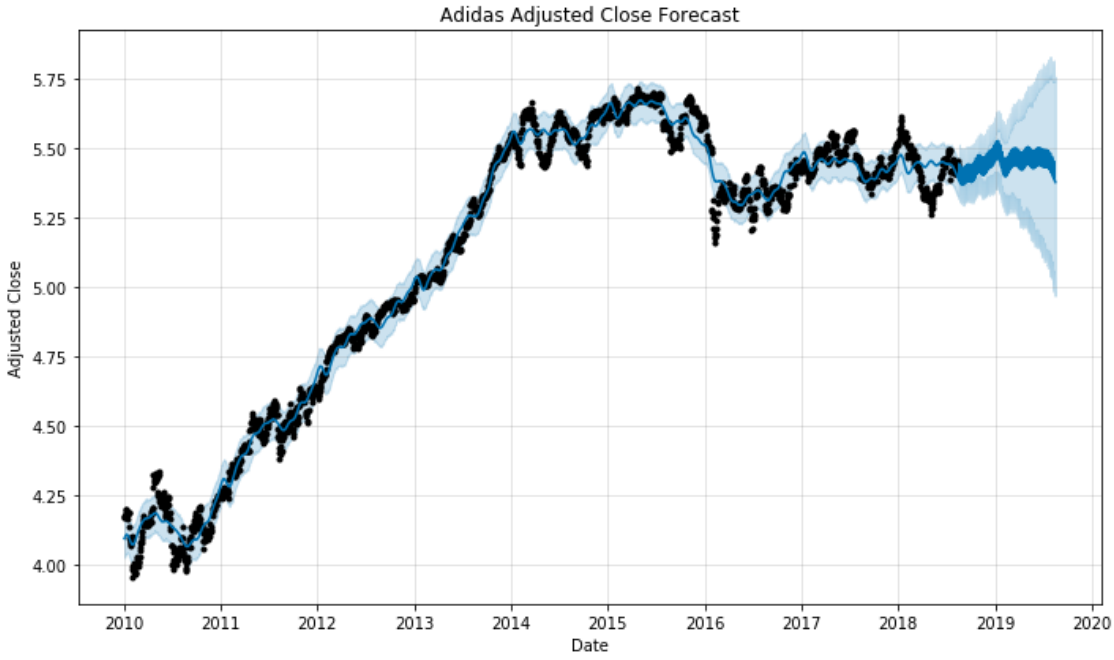
Out[22]:

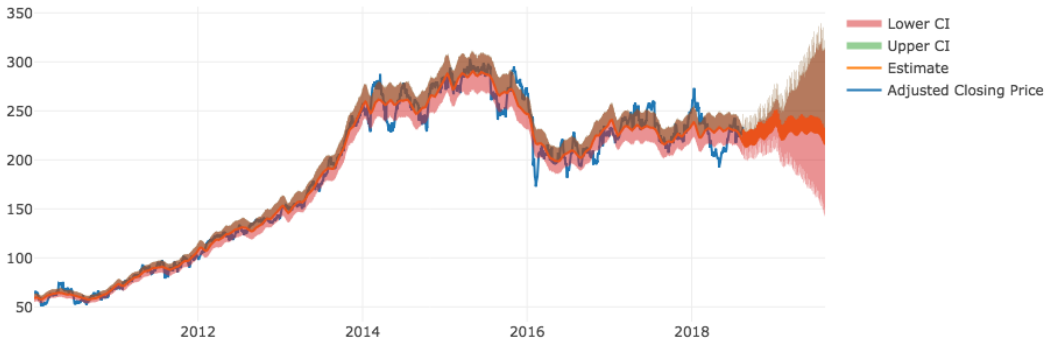
	ds	yhat	yhat_lower	yhat_upper
2531	2019-08-12	5.388282	4.986944	5.741578
2532	2019-08-13	5.385470	4.983736	5.748145
2533	2019-08-14	5.384394	4.968318	5.748430
2534	2019-08-15	5.382223	4.968564	5.760302
2535	2019-08-16	5.379032	4.988289	5.741895

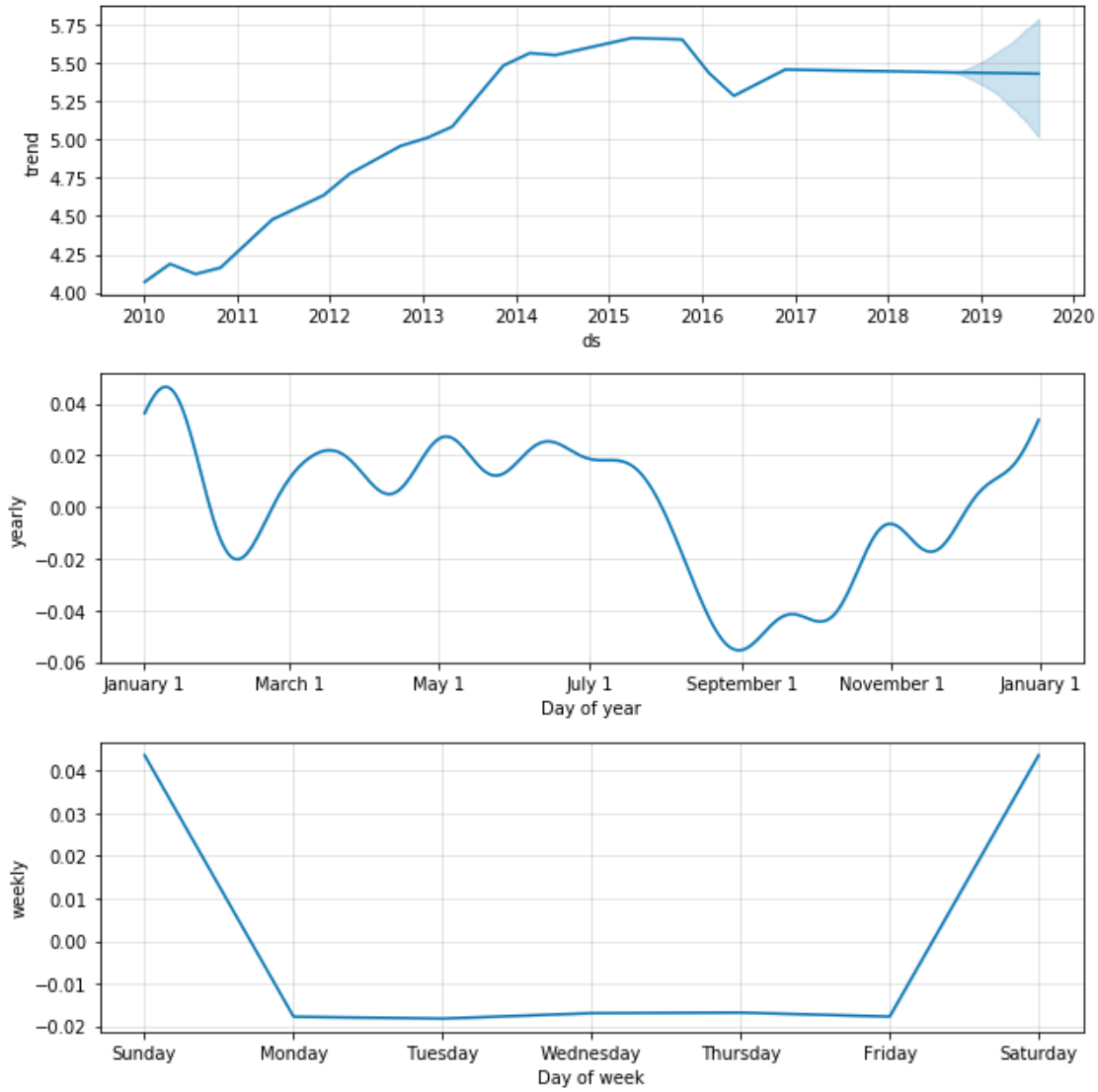


Out[24]:

	ds	yhat	yhat_lower	yhat_upper
0	2010-01-04	58.931005	55.149396	62.956123
1	2010-01-05	59.067436	54.931006	63.395284
2	2010-01-06	59.293865	55.349541	63.140817
3	2010-01-07	59.437134	55.348818	63.318060
4	2010-01-08	59.498442	55.541527	63.626843




350
300
250
200
150
100
50
2012
2014
2016
2018
Lower CI
Upper CI
Estimate
Adjusted Closing Price

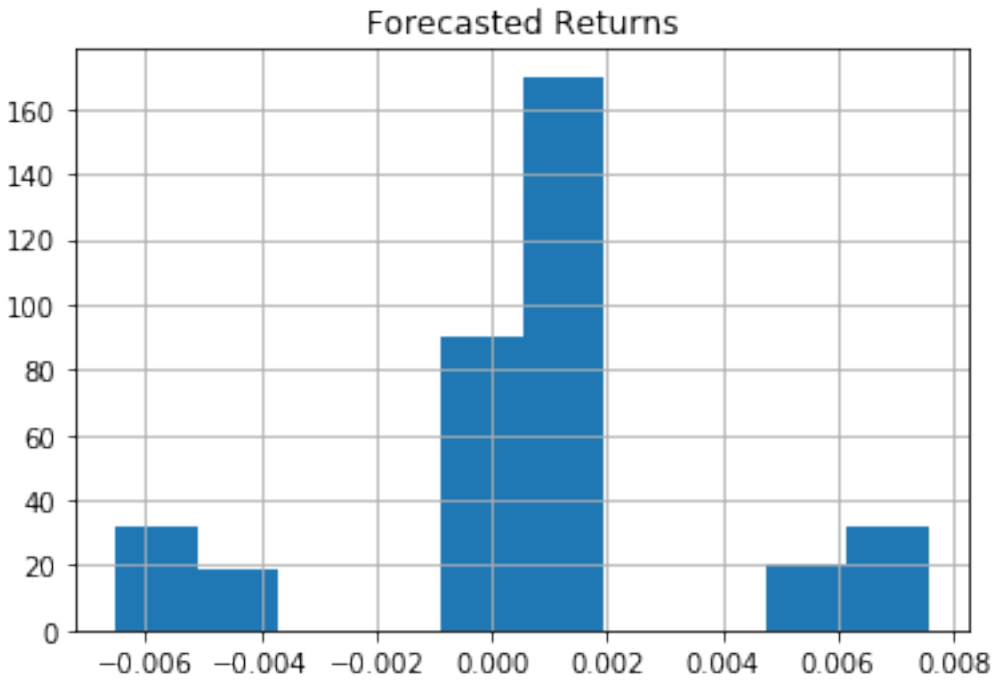


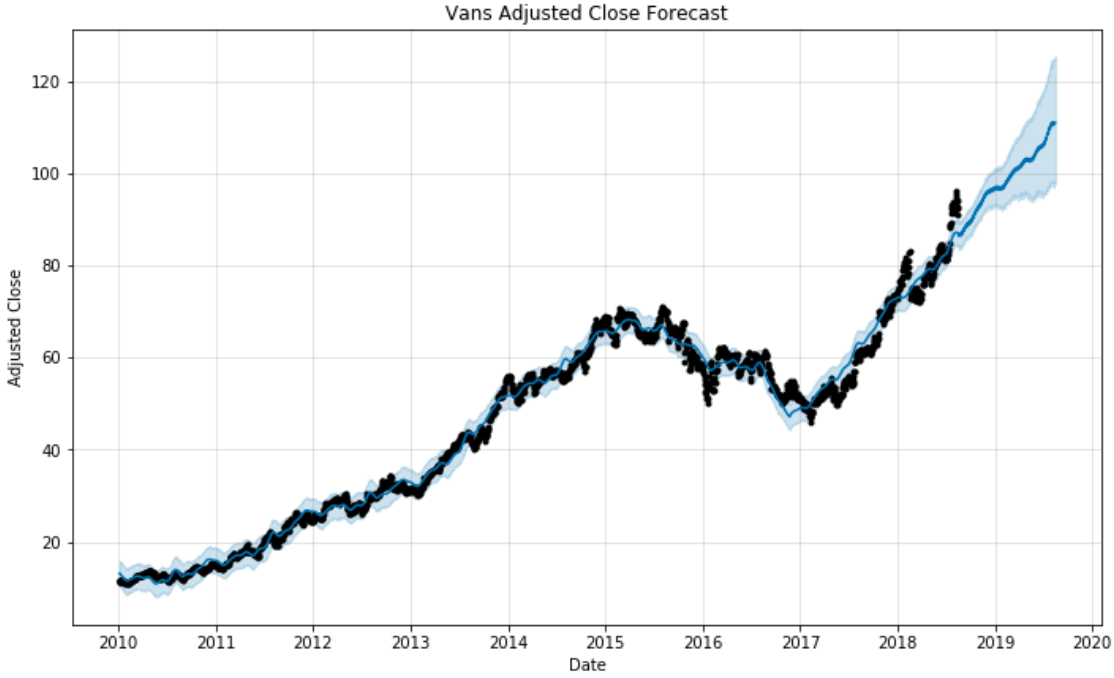
4 Vans Footwear Forecast

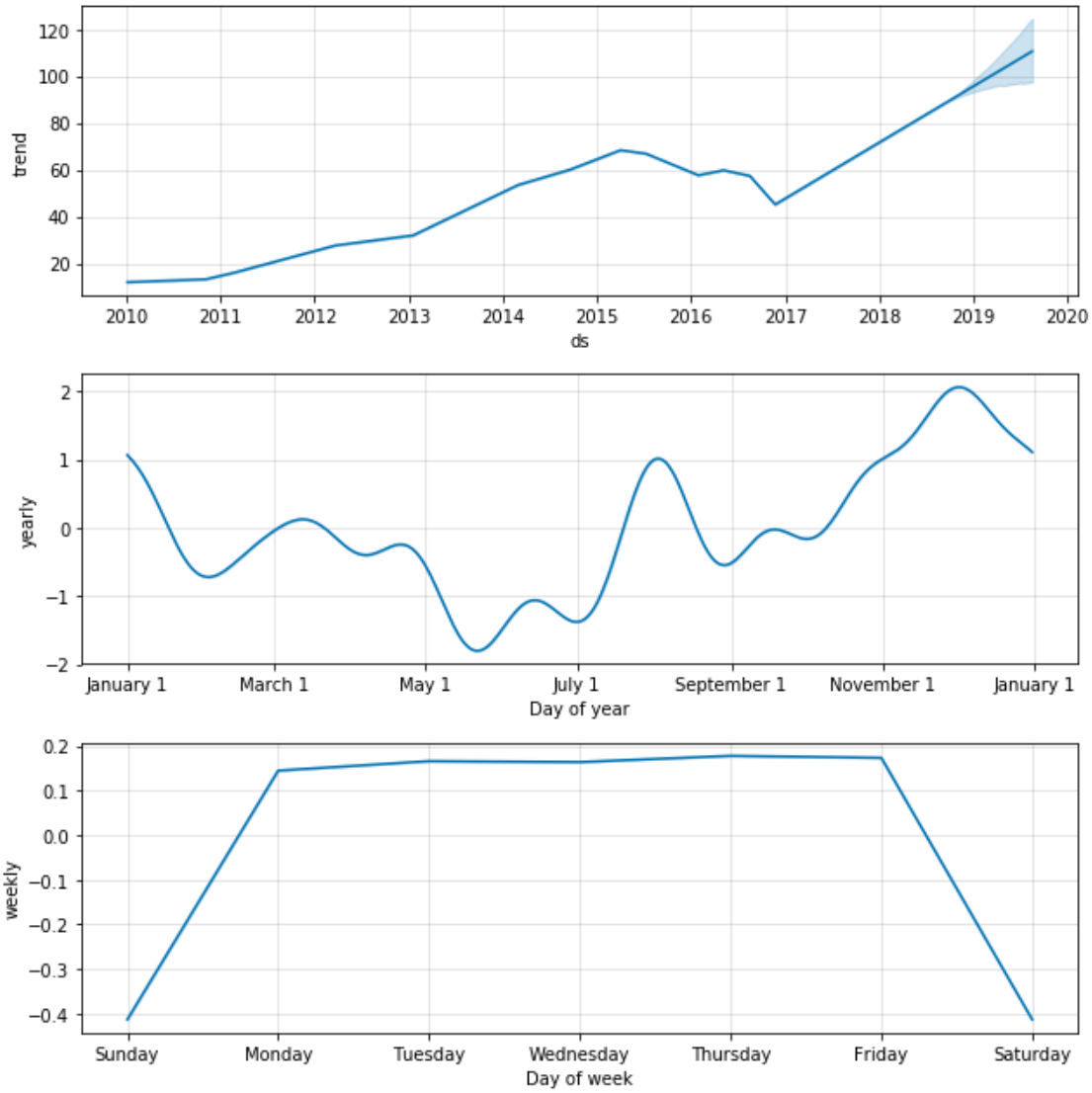
```
INFO:fbprophet.forecaster:Disabling daily seasonality. Run prophet with daily_seasonality=True
```

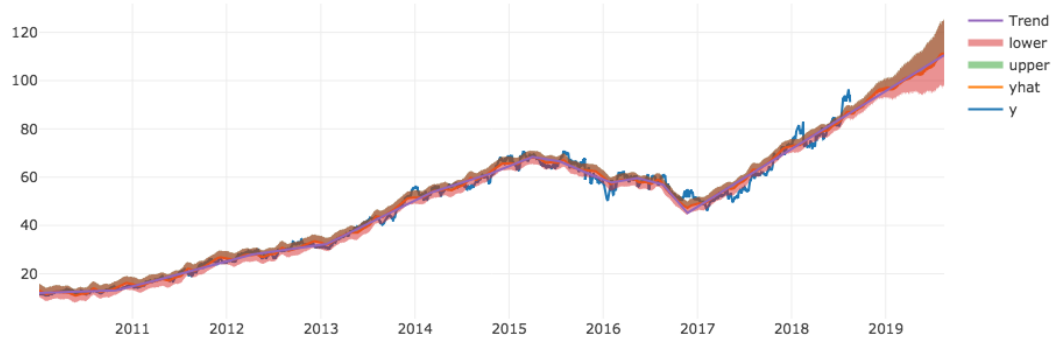
Out[28]:

	ds	yhat	yhat_lower	yhat_upper
2531	2019-08-12	111.052921	97.948524	124.915833
2532	2019-08-13	111.052085	98.392702	124.485337
2533	2019-08-14	111.024584	97.567074	125.361352
2534	2019-08-15	111.011038	97.645971	125.346584
2535	2019-08-16	110.978431	97.810674	125.119352


Forecasted Returns
160
140
120
100
80
60
40
20
0
−0.006
−0.004
−0.002
0.000
0.002
0.004
0.006
0.008


Vans Adjusted Close Forecast
Adjusted Close
120
100
80
60
40
20
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
Date


trend
120
100
80
60
40
20
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
ds
yearly
2
1
0
−1
−2
January 1
March 1
May 1
July 1
September 1
November 1
January 1
Day of year
weekly
0.2
0.1
0.0
−0.1
−0.2
−0.3
−0.4
Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Day of week



Out[33]:

	ds	y
0	2010-01-04	11.234499
1	2010-01-05	11.448840
2	2010-01-06	11.402914
3	2010-01-07	11.623373
4	2010-01-08	11.562134