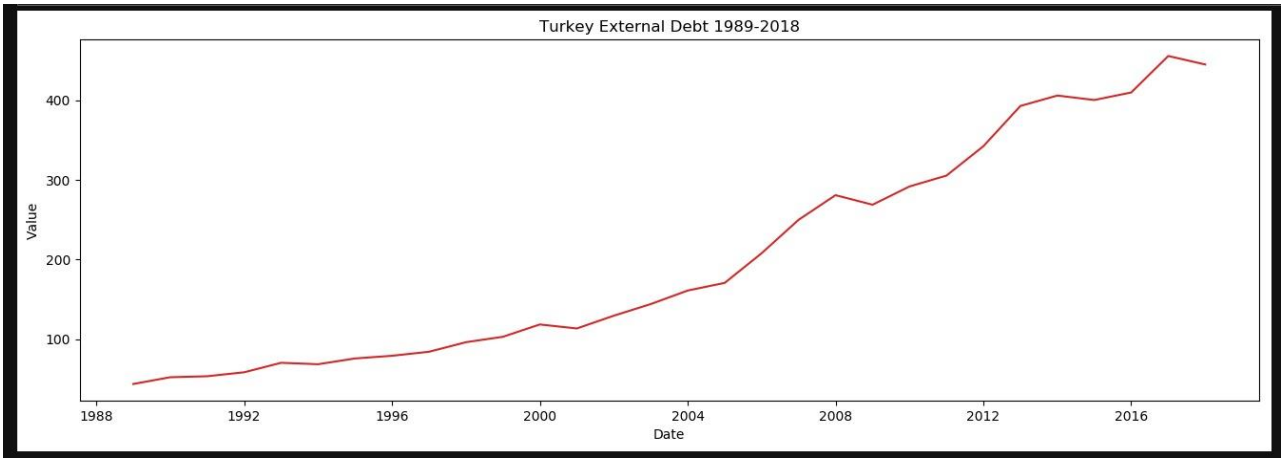
The Process of Forecasting

1-



"Turkey External Debt" from 1989 to 2018 is showing in the graph. As you see, the data is not stationary and its variance is not high. Also, there is no constant average value, but the trend is rising. KPSS and ADF tests have been applied to measure the stationary.

2-

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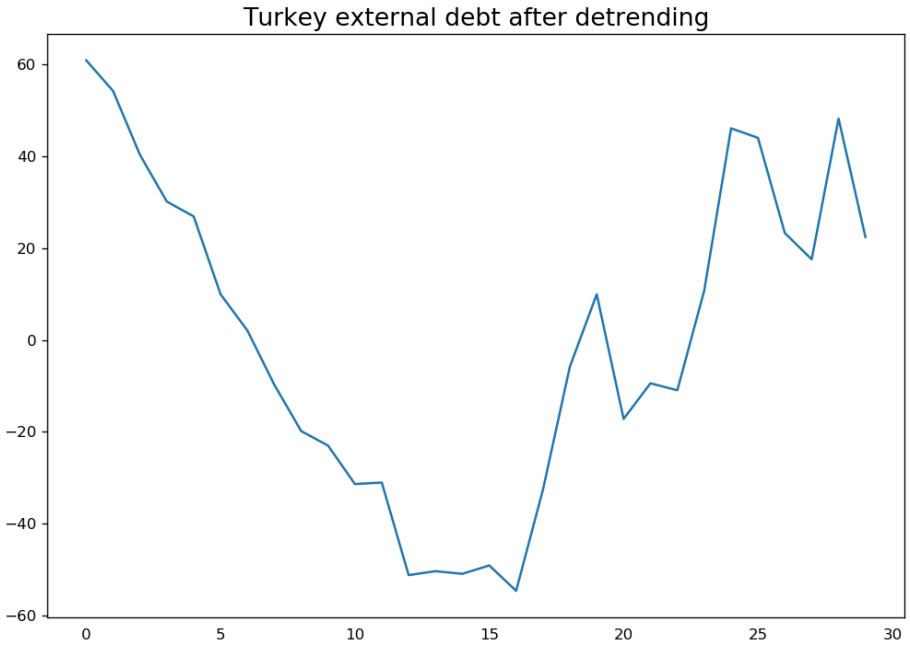
ADF Statistic: 1.1941208815112285
p-value: 0.9959450112675786
Critial Values:
   1%, -3.6790595944893187
Critial Values:
   5%, -2.9678817237279103
Critial Values:
   10%, -2.6231583472057074

KPSS Statistic: 0.421629
p-value: 0.067832
Critial Values:
   10%, 0.347
Critial Values:
   5%, 0.463
Critial Values:
   2.5%, 0.574
Critial Values:
   1%, 0.739
```

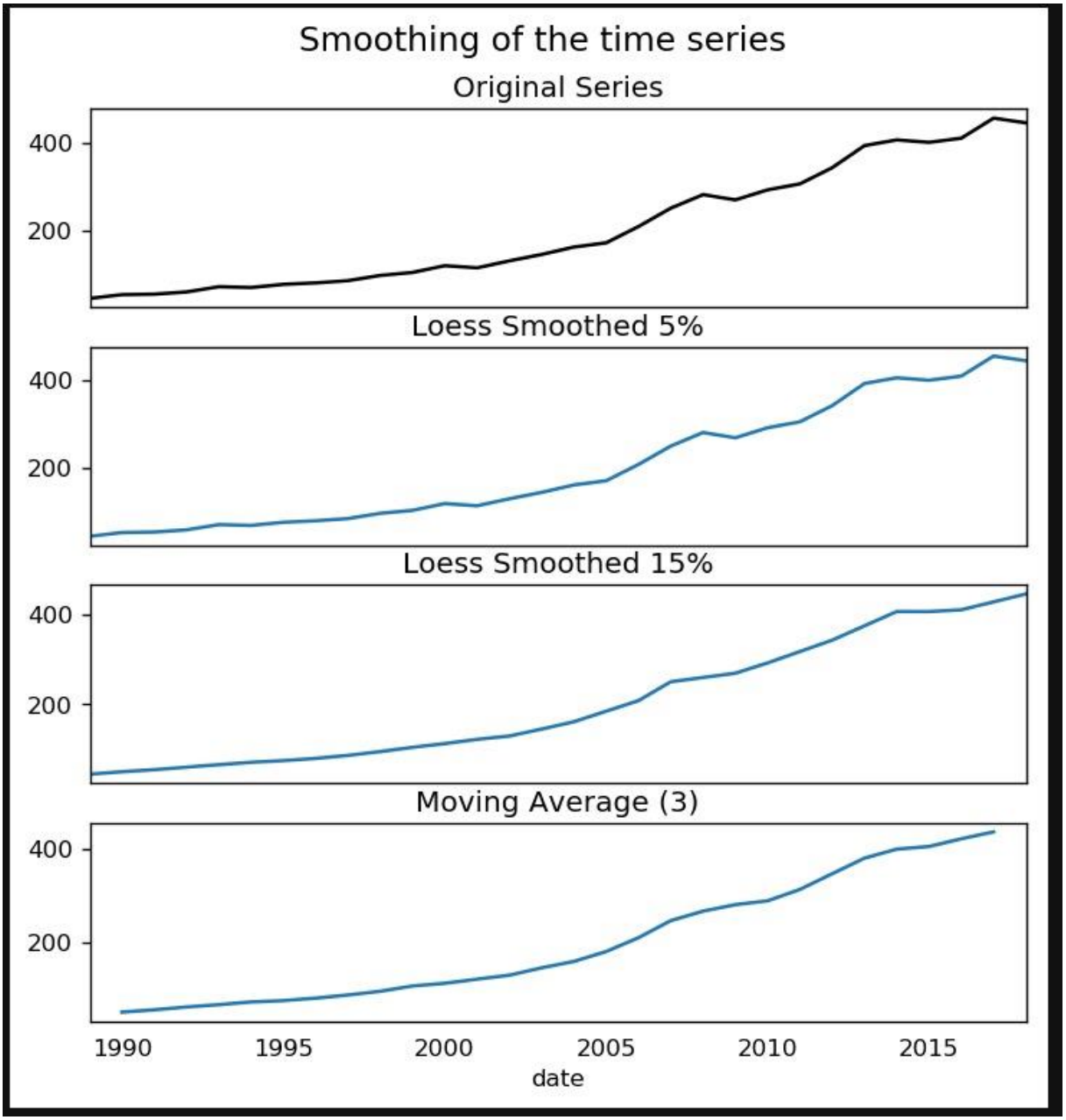
According to the KPSS test, our data is not stationary because the p value of the test is higher than 0.05. Also, we understood from the graph that there is a rising trend so we have applied detrending method to eliminate it.

3-



And now, our data became stationary and the trend has been eliminated. Thus, it is suitable for forecasting.

4-



We have used Loess Smoothing and Moving Average Methods for the forecasting. According to the situation, Turkey's external debt is rising for both of the methods. Because the results from these two methods are parallel to each other, one of them can be used for the forecasting.