

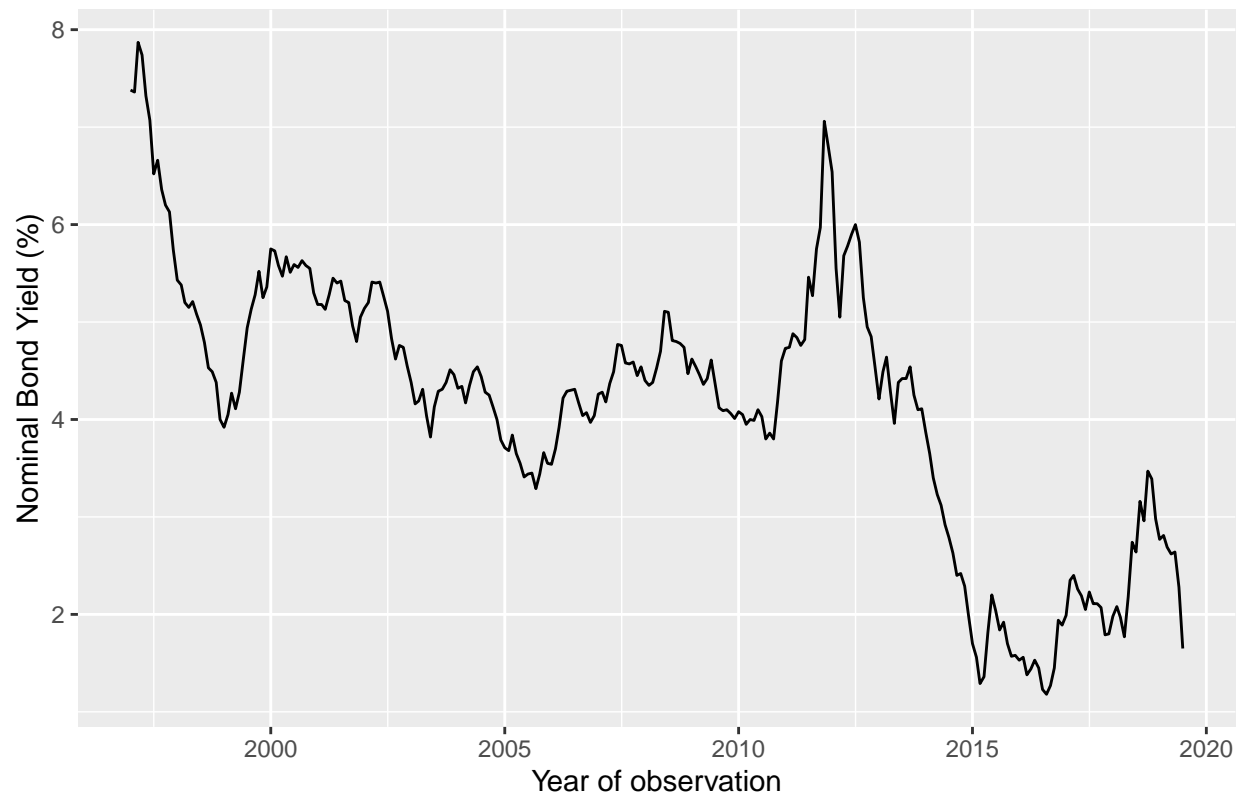
Assignment-3

Group 22

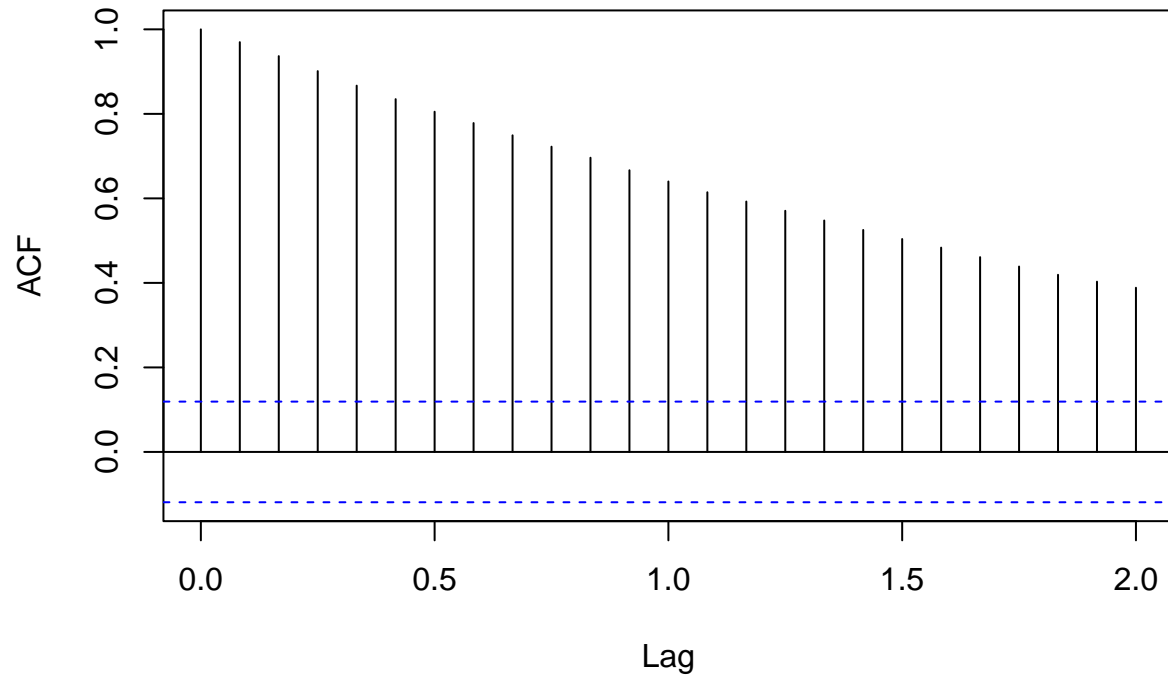
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Graph 1: 10 year Italian Bond Yield (1997–2019)



ACF of Italian Bond Yield Time Series



In order to apply an Hidden Markov Model, there is a series of assumptions that has to be met. First, the time series under analysis has to be stationary. By looking at Graph 1, it is not clear if there is a seasonal or trend component, therefore it is necessary to perform an Augmented Dickey-Fuller (ADF) test to assess stationarity. By looking at Table 1, we can see that the test is rejected and thus the time series is stationary.

Table 1: ADF Test Results

Test Statistic	-2.4709
p-value	0.3776
Lag Order	6

Another condition that has to be met is that there must be