FI Quant Project - Internship Feb 2022
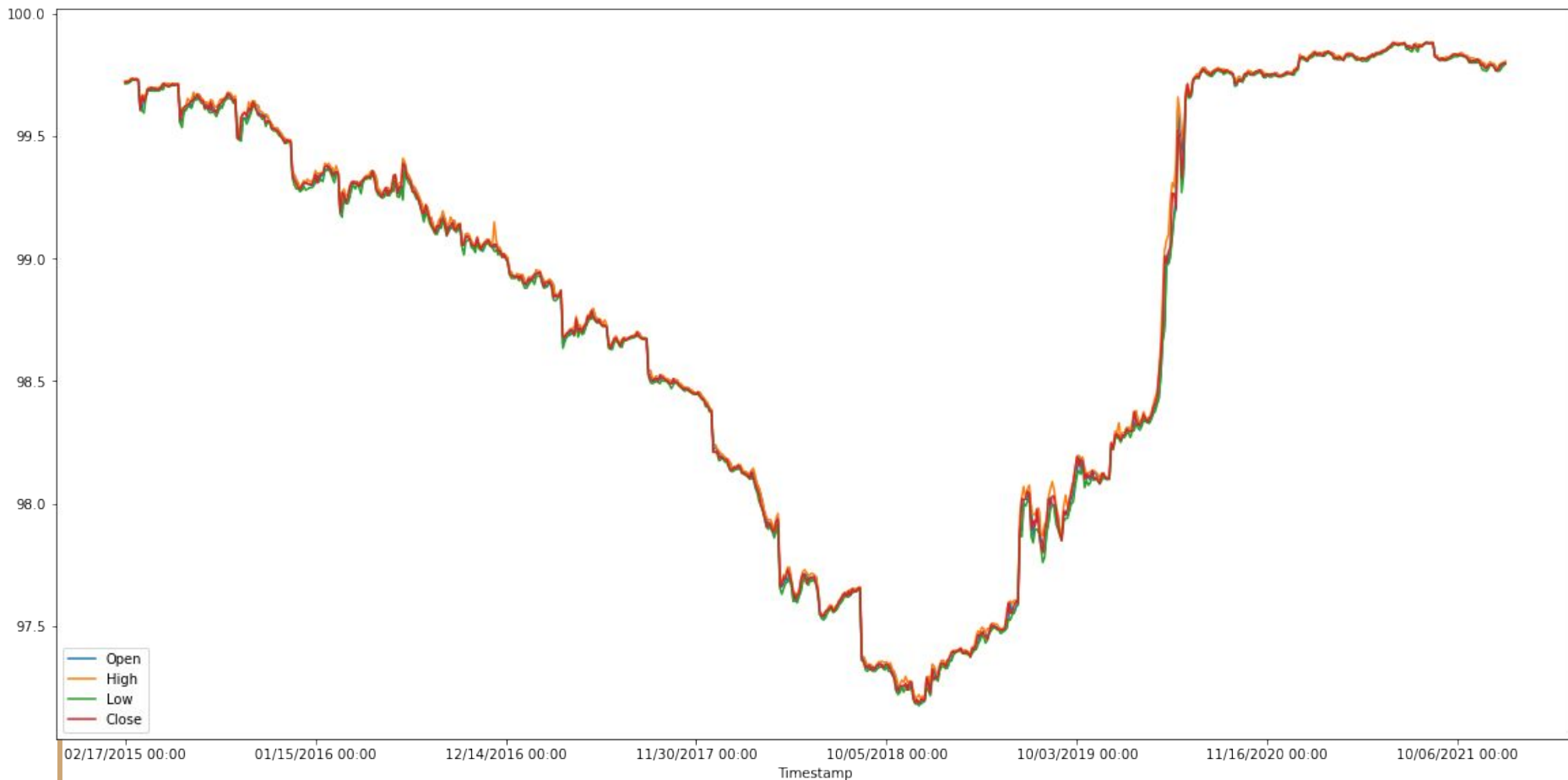
Pratham Agarwal
Advanced Questions

Similarities between Days having Volume more than the last 30 days Average Volume
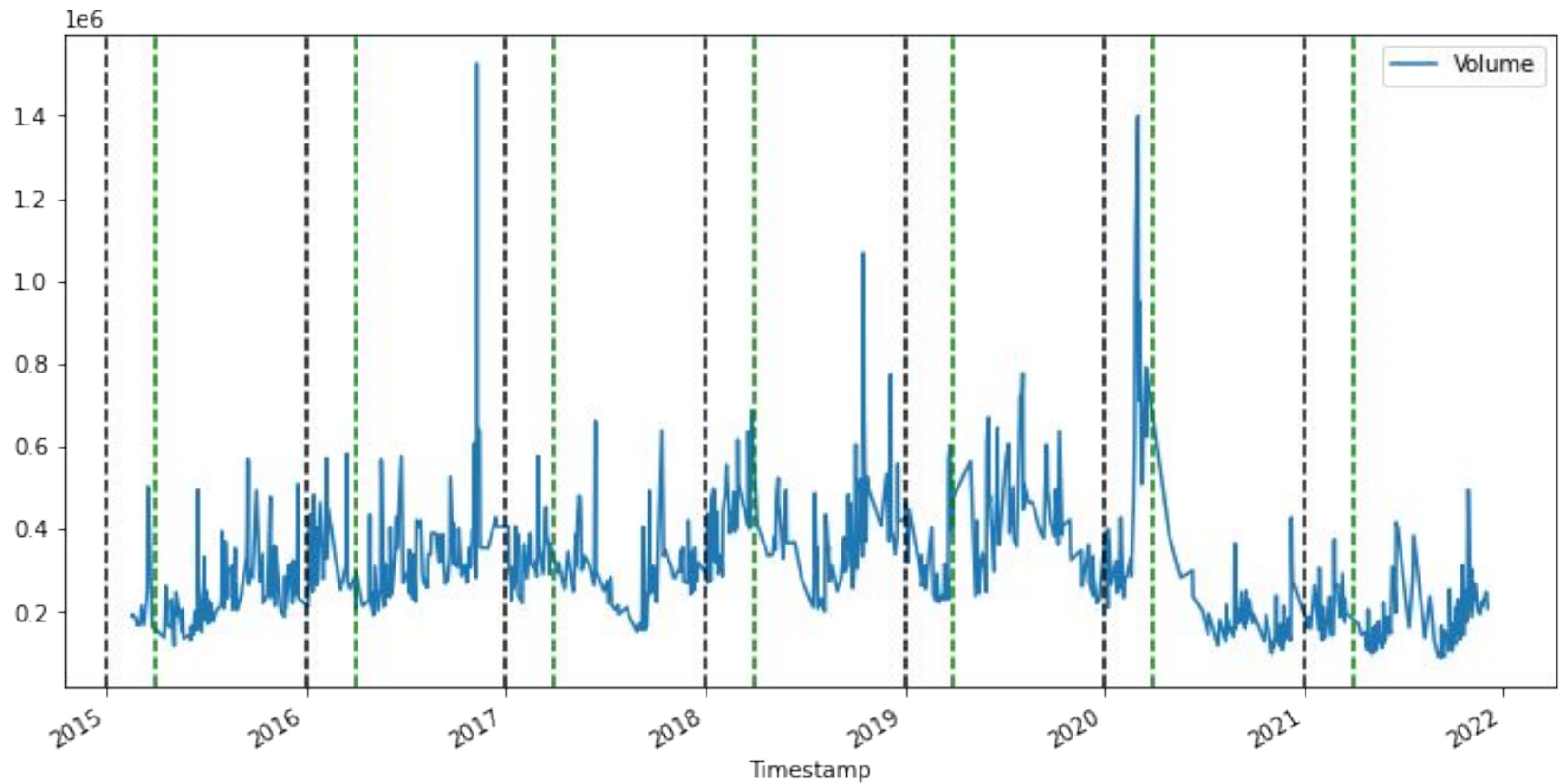
Plot of OHLC prices for Days having Volume more than last 30 Days average

Inference from Fundamental Analysis : OHLC Prices form a trough maybe due to a bad news / negative sentiment but the market restablizes as people gain confidence in the contract
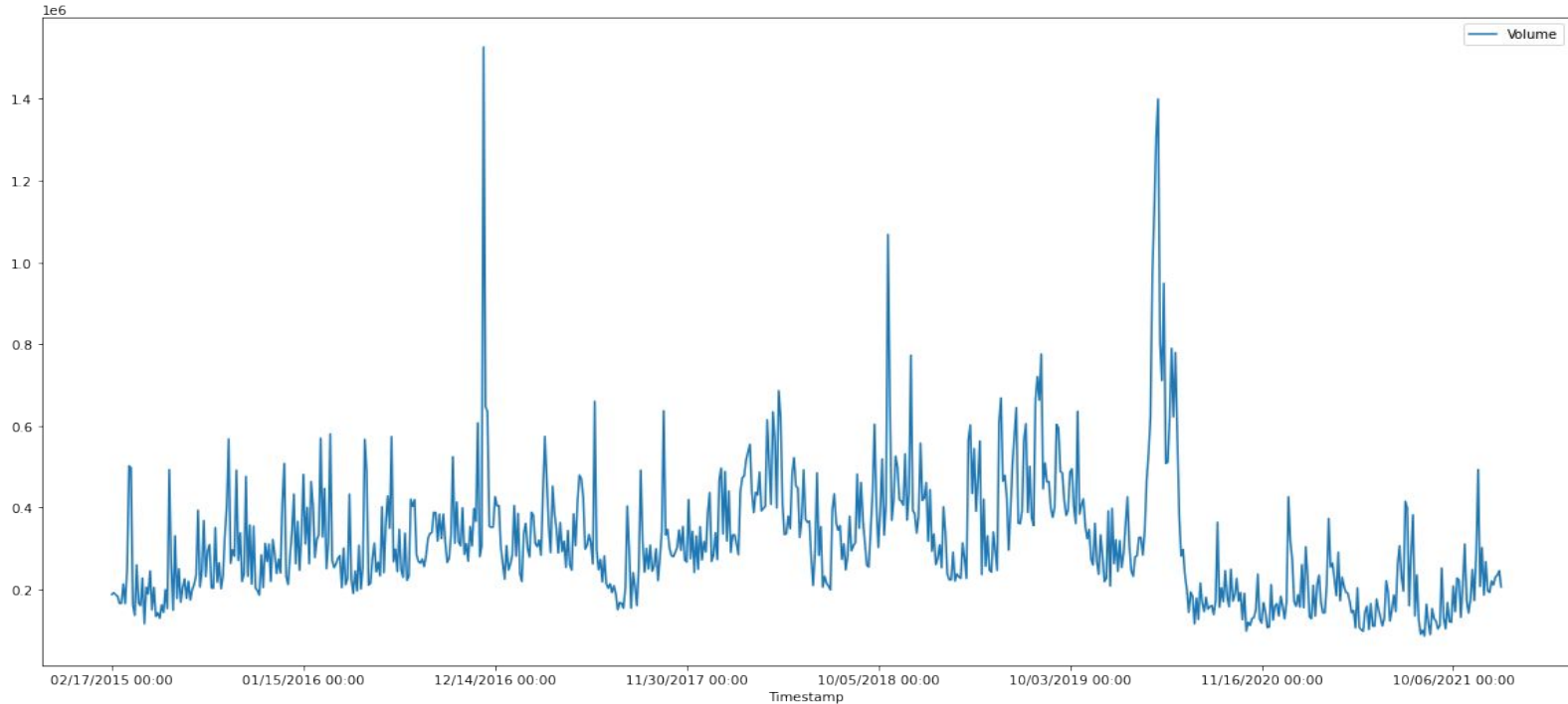
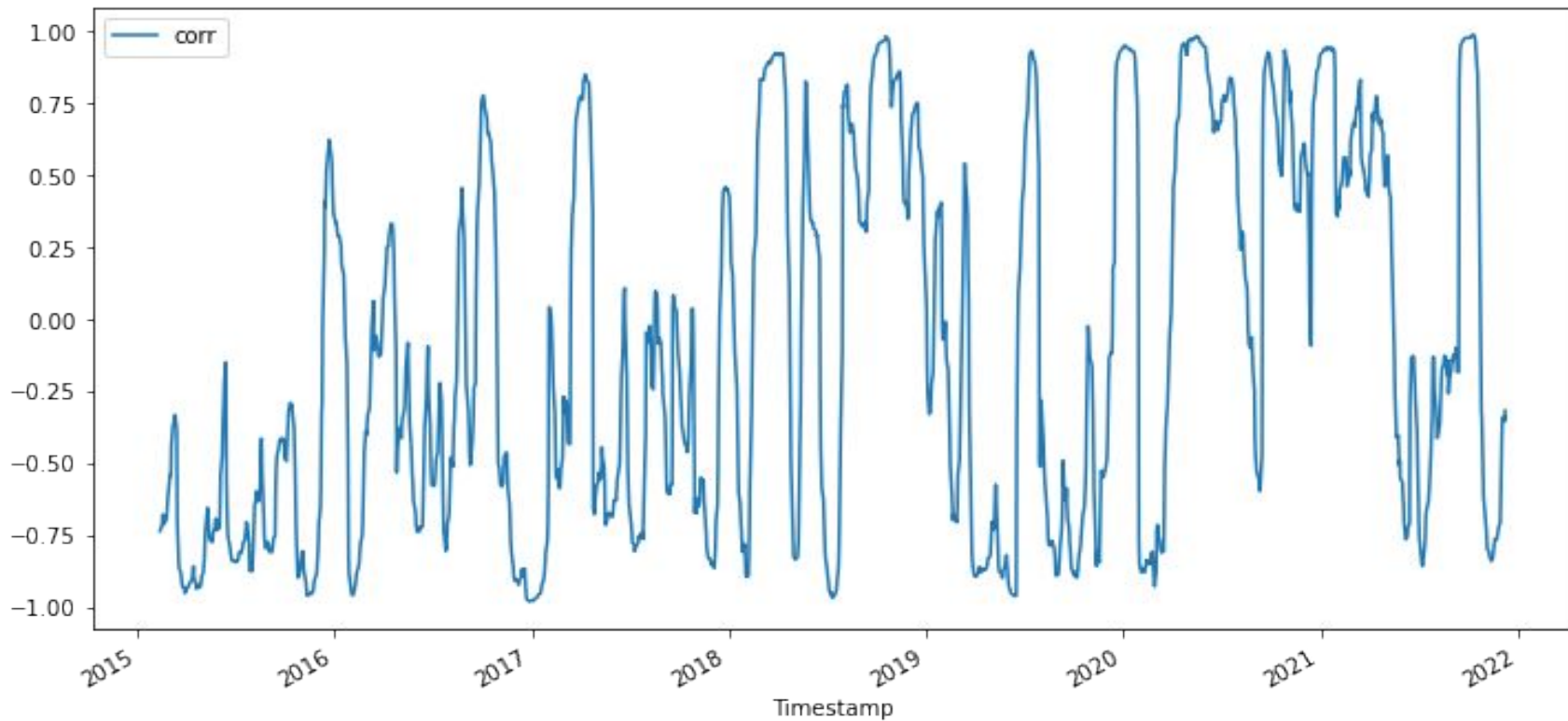Volume Vs Time Plot for Days having volume more than last 30 days average

The dotted black line shows start of year while the green line shows end of first quarter.
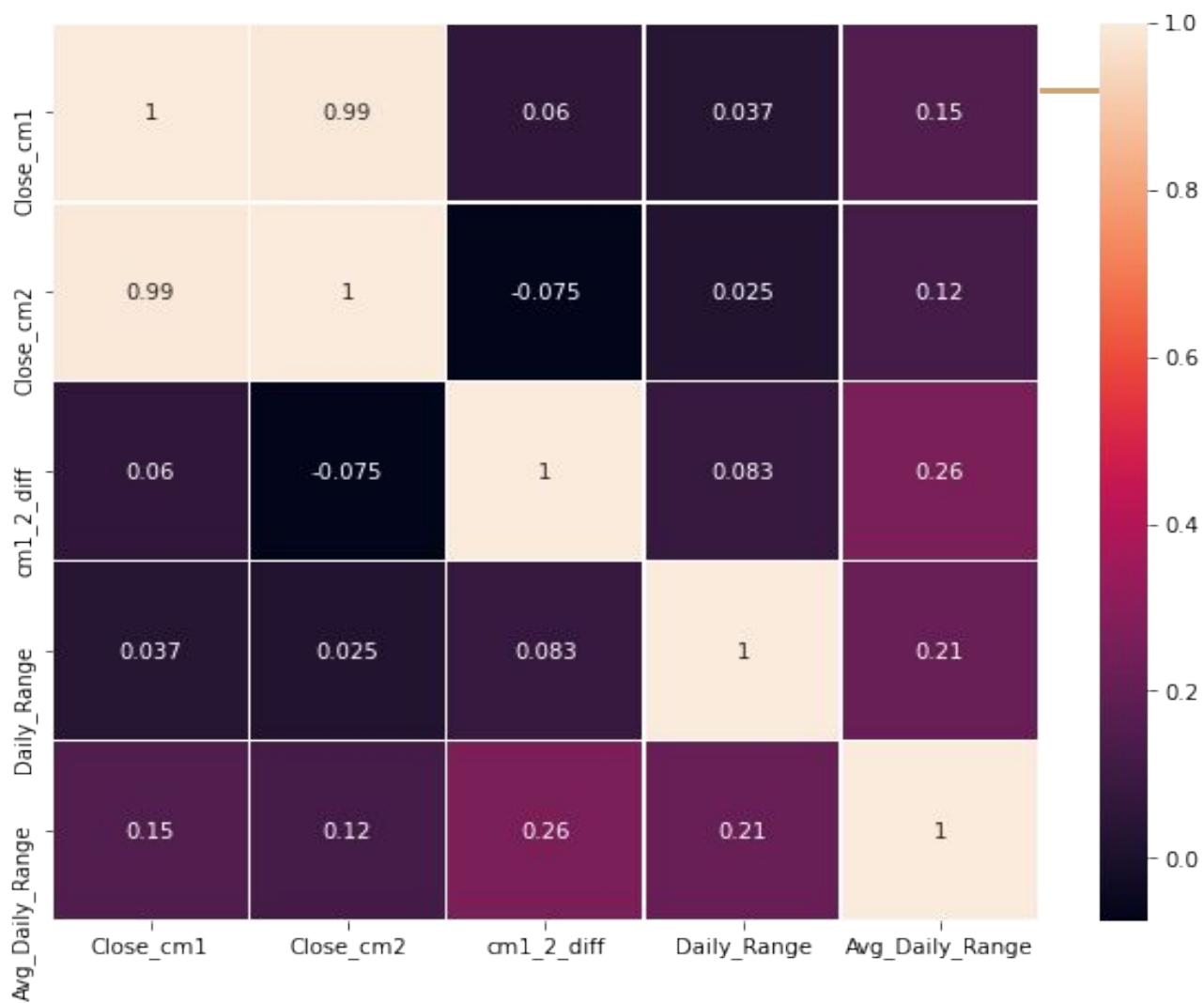
Correlation between c1-c2 and c1 for a rolling 30 days window

Correlation of cm1-cm2 and cm1 close price on a rolling
basis of 30 days Vs Time
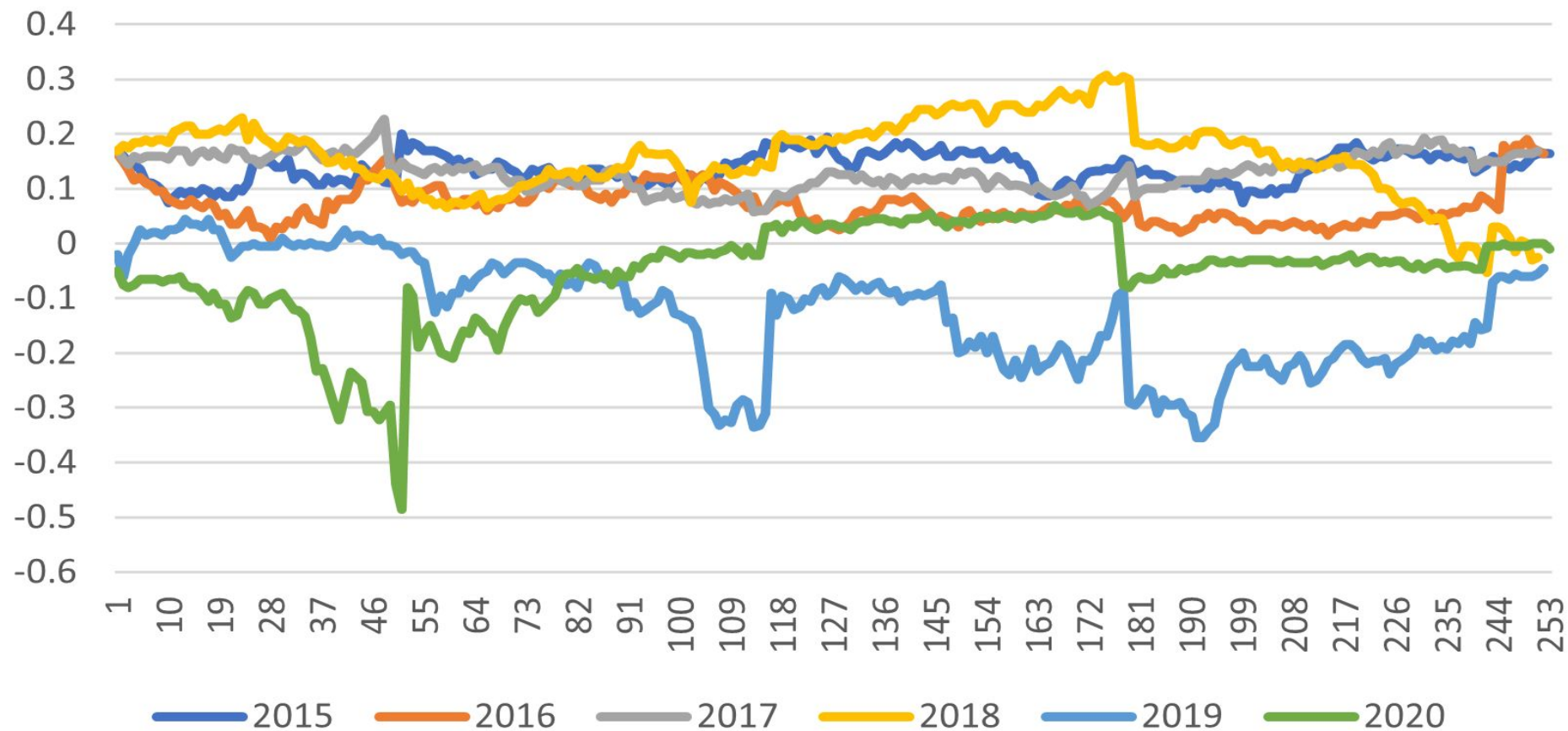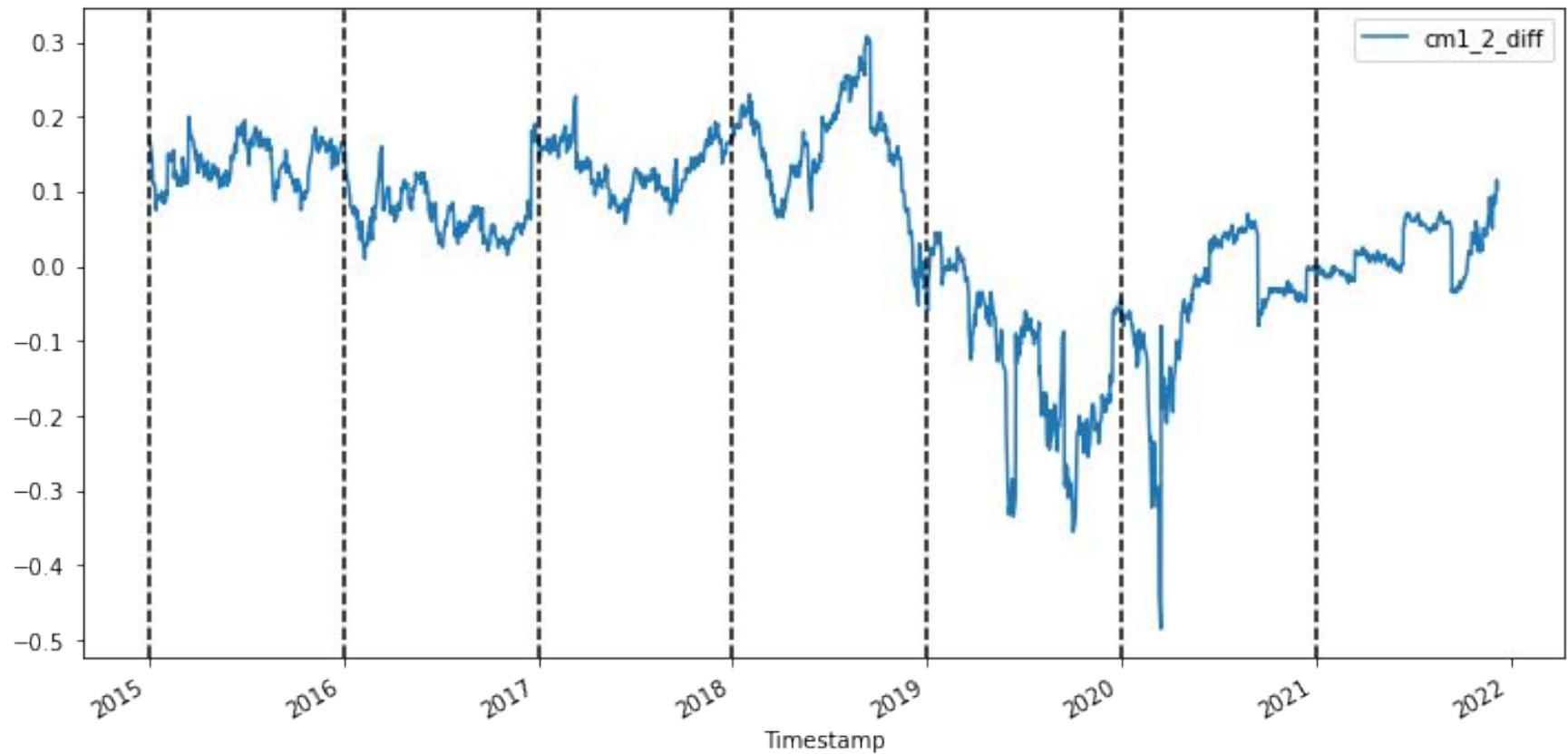
Correlation in cm1-cm2 matrix

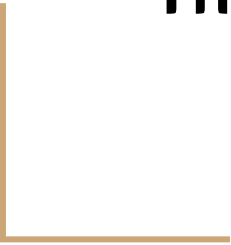# Seasonality: Yearly pattern in c1-c2 for the past 5 years.

Cm1-Cm2 vs Time

As we can conclude from the previous plot , the spread cm1-cm2 is profitable in the year 2015 and 2018 but we incur a loss if we settle the contract in 2016, 2017, 2019 , 2020 as the closing prices are below zero for the contract.
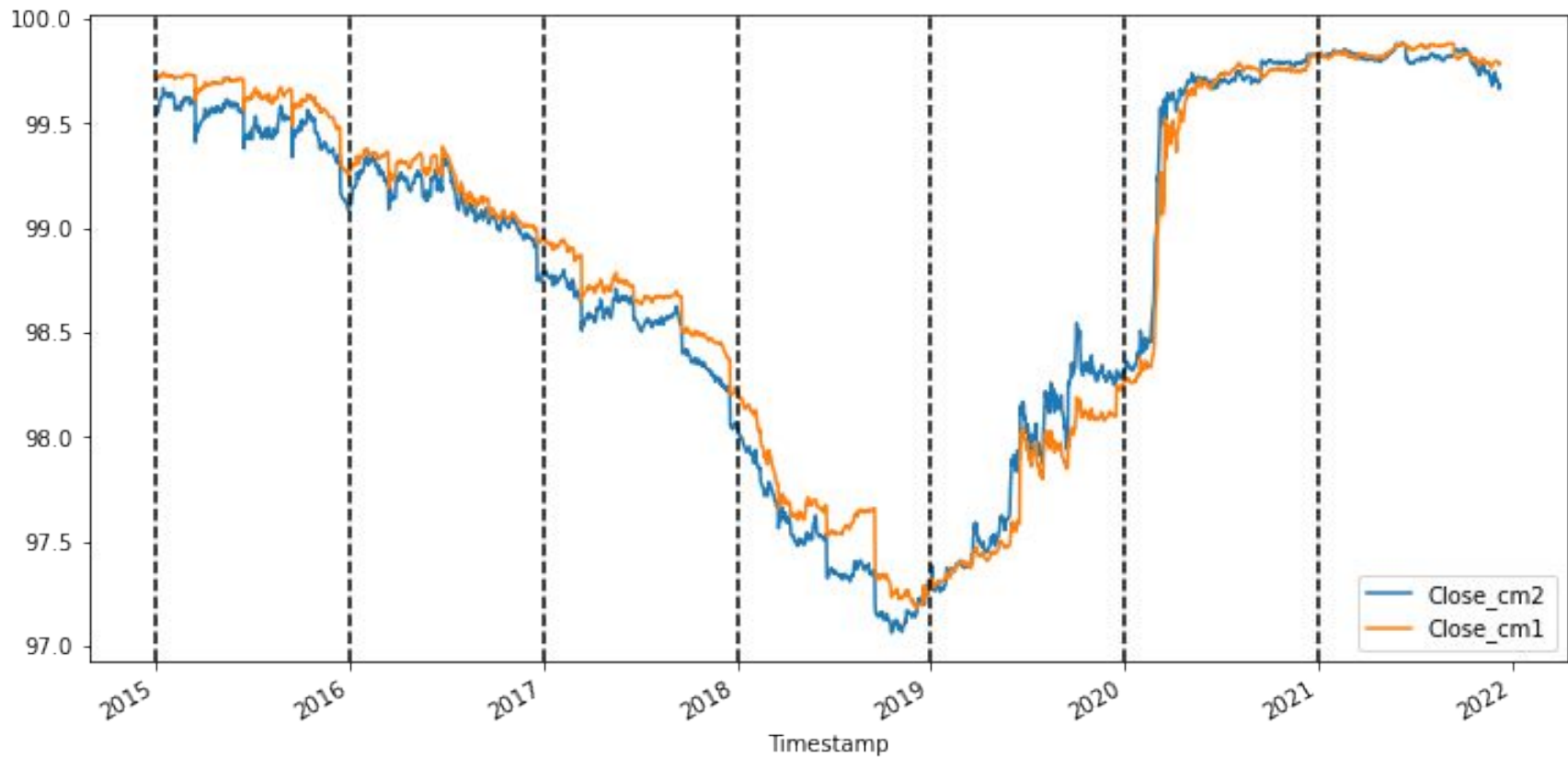
Plot of difference of close prices of CM1 and Cm2 Vs Timestamp(Yearly for 5 years)
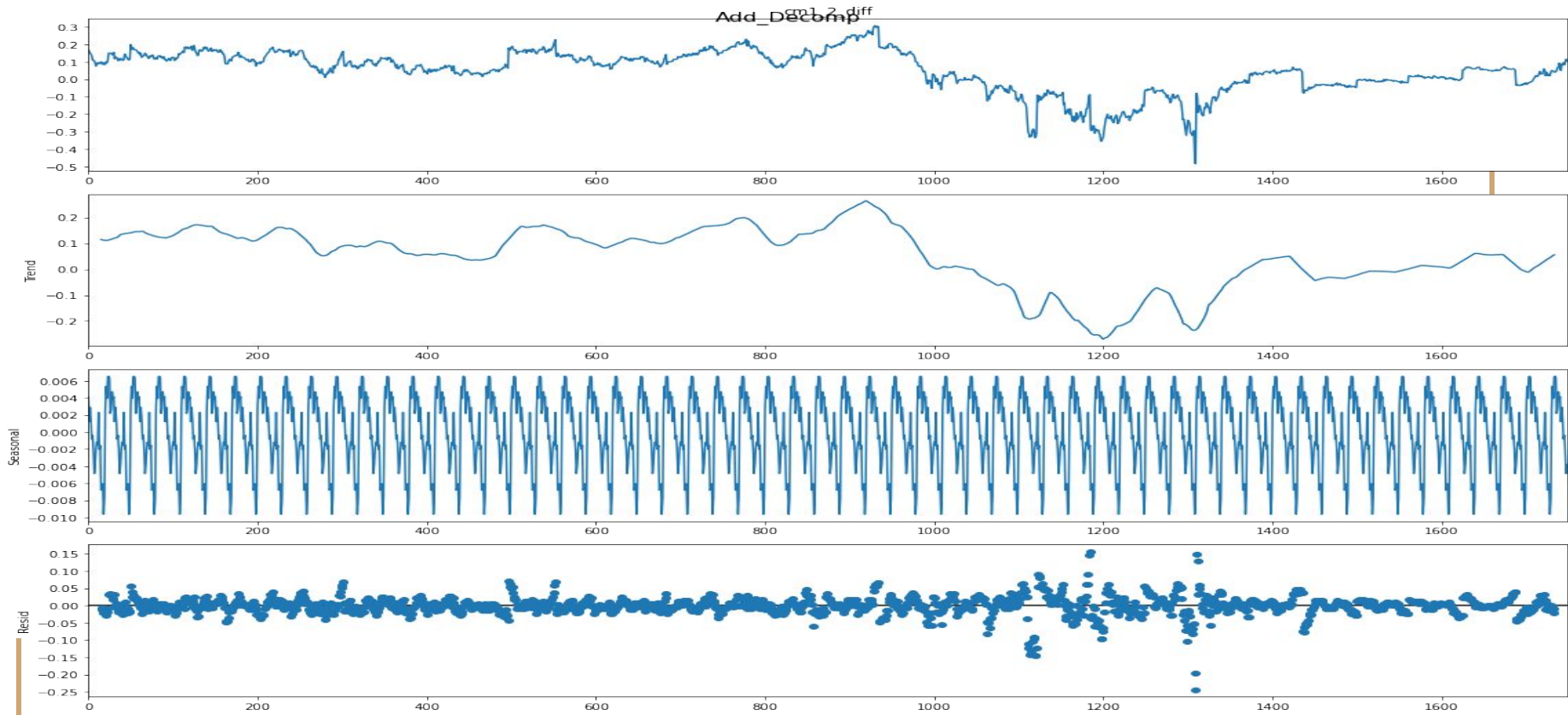
After every new year (indicated using dotted lines in previous graph) , we see that the Closing Price Differences of Cm1 and Cm2 fall
Therefore It gives rise to yearly seasonality
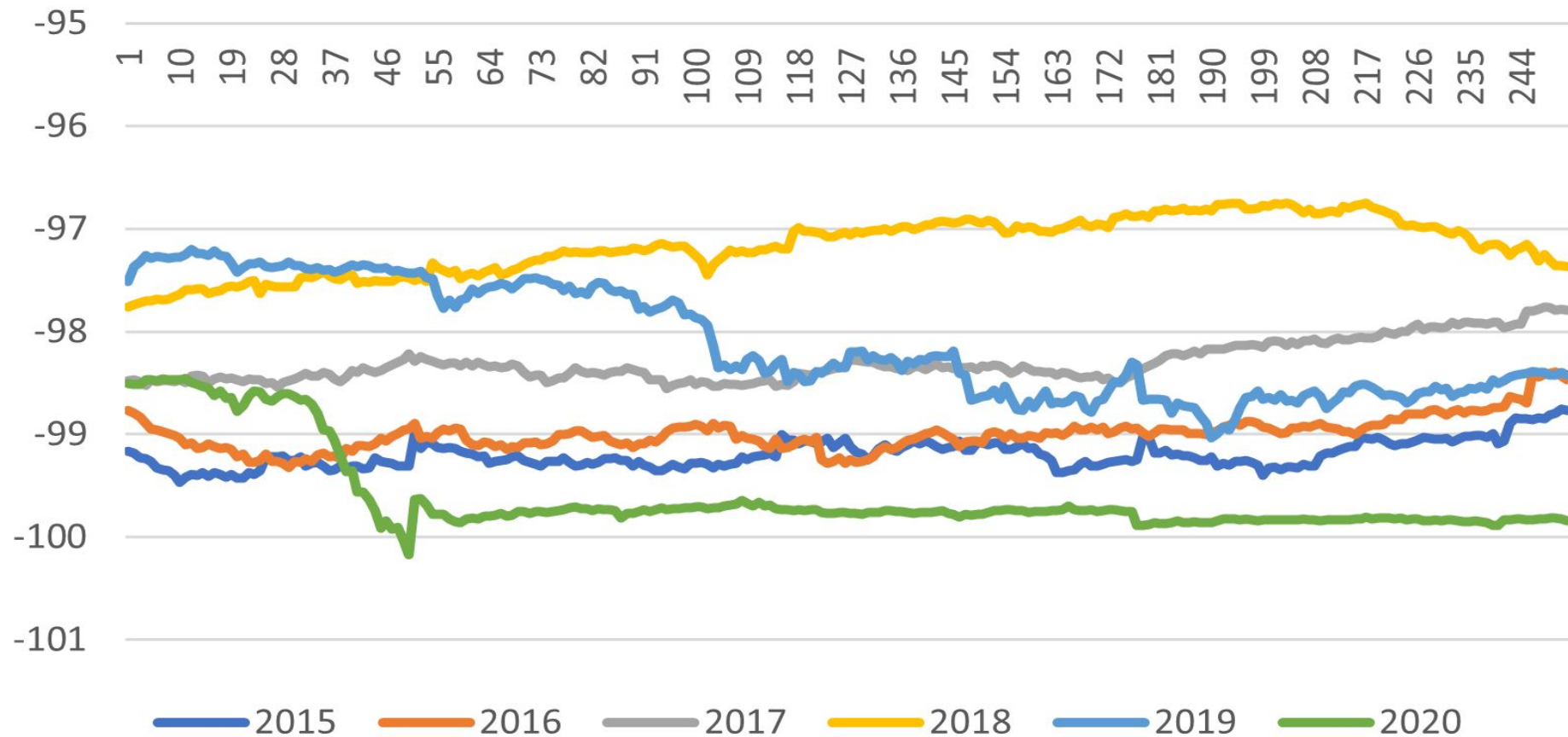
Close of CM1 and CM2 Vs TIme Plot

Additive Decomposition of Time Series data (CM1 - CM2 closing prices) The residuals are close to zero therefore additive decomposition captures our data sufficiently well.
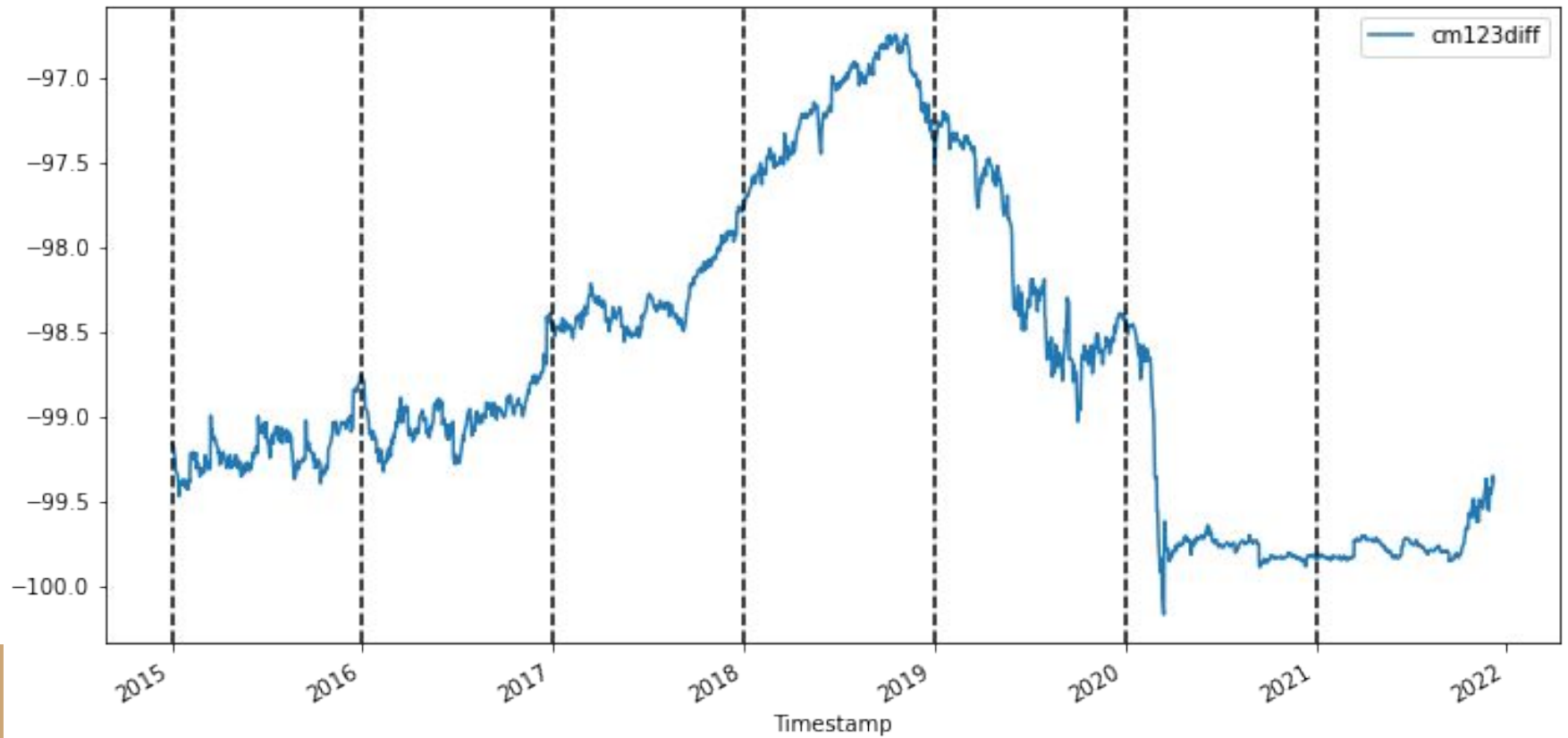
Seasonality: Yearly pattern in c1-c2-c3 for the past 5 years.
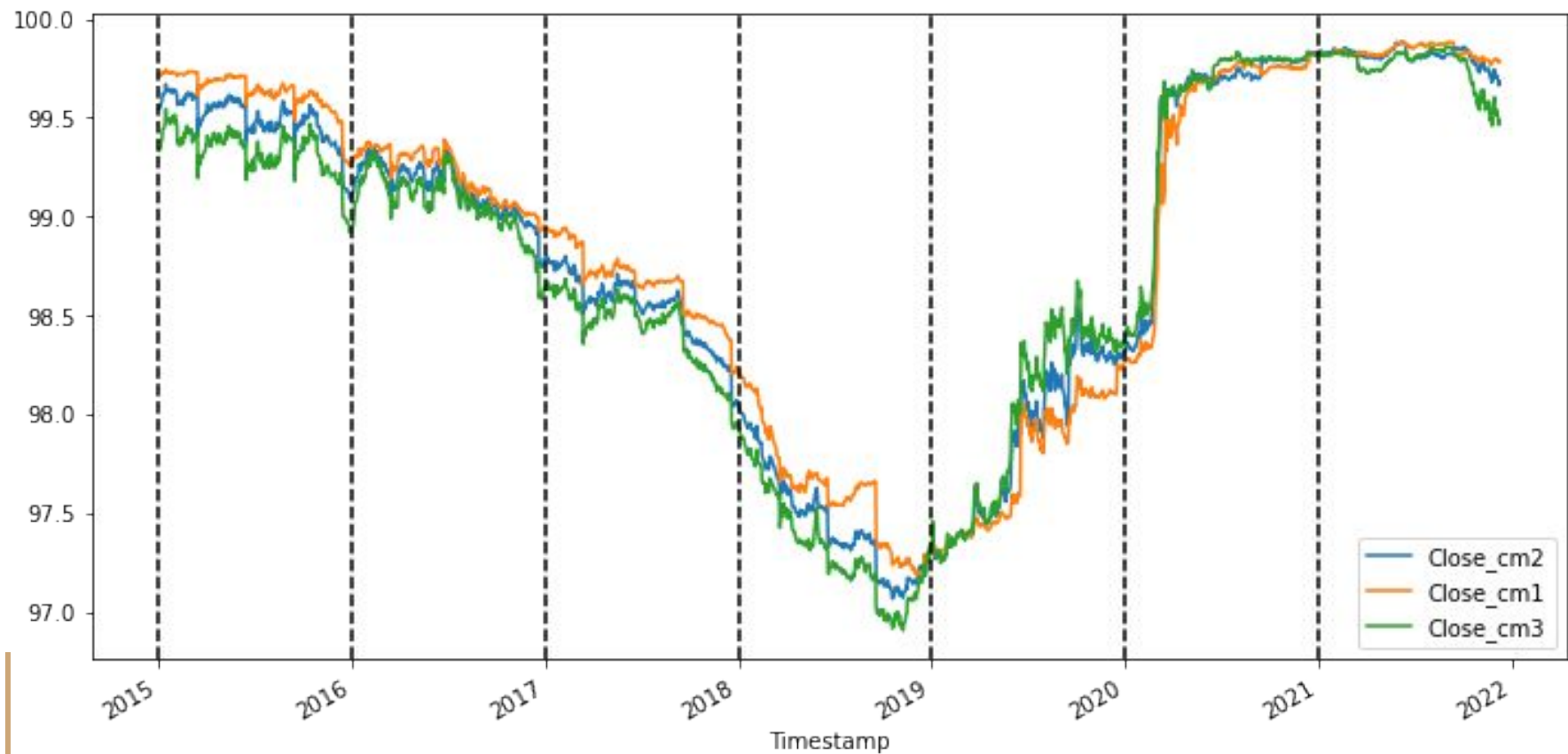
cm1-cm2-cm3 vs Time

Plot of difference of close prices of CM1,Cm2 and Cm3 Vs Timestamp(Yearly for 5 years)
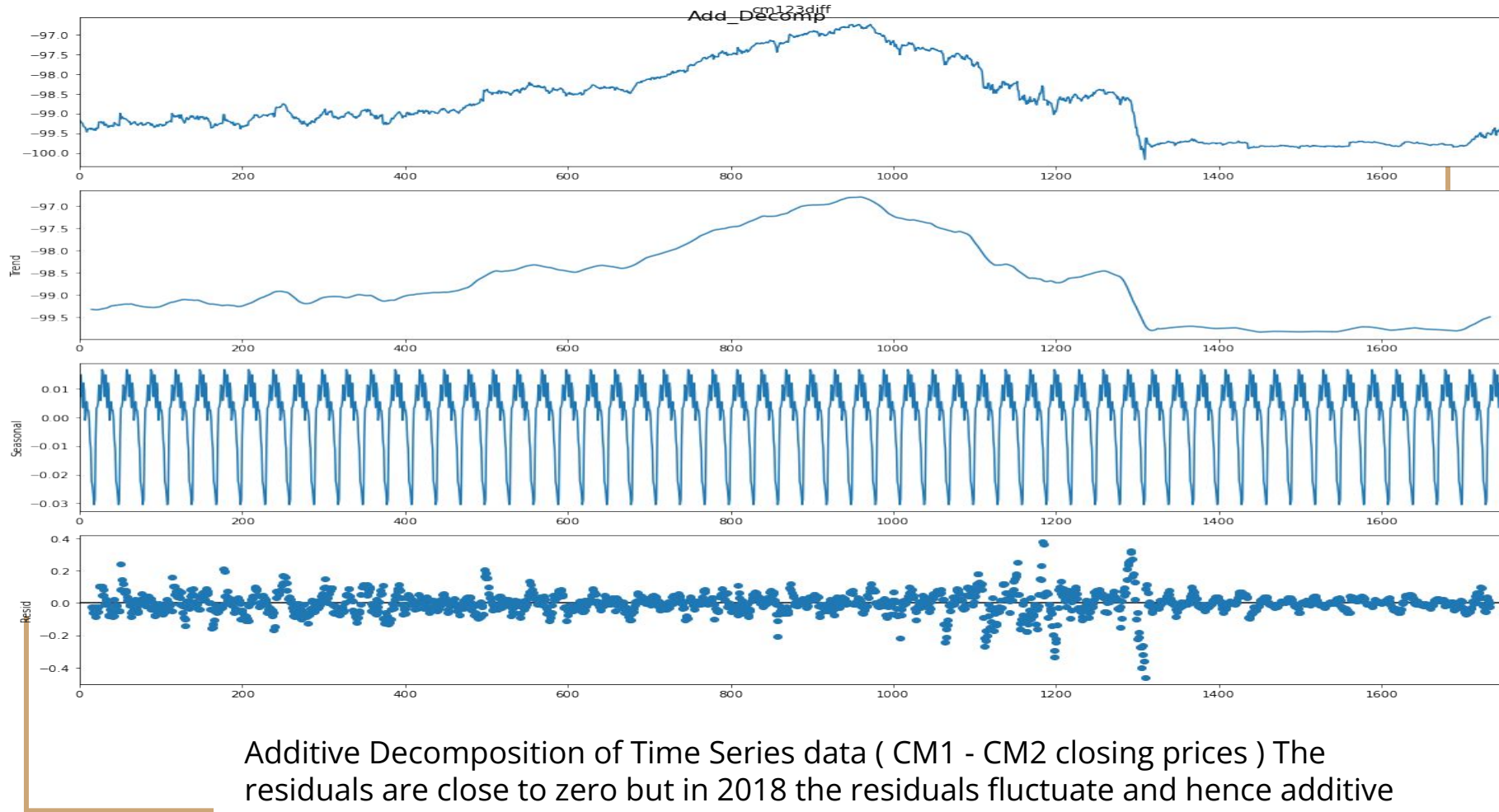
After every new year , we see that the Closing Price Differences fall a bit. The descend is more pronouncly observed in 2020. This could be due to the news of coronavirus and related negative sentiments.

Close of CM1,CM2 and CM3 Vs TIme Plot

Additive Decomposition of Time Series data (CM1 - CM2 closing prices) The residuals are close to zero but in 2018 the residuals fluctuate and hence additive decomposition is not sufficient to capture the data.