**Assignment:**

1. The attached data is the performance of the 4 market indices throughout the period of 2002 – 2020. To do the analysis there is a need to calculate average

monthly returns for all the indices and express it in percentages based on the following formula:

Average monthly returns = (closing price at the end of the month – opening price at the beginning of the month) \* 100/ (opening price at the beginning of the month)

The consequent analysis will be done based on the calculate average monthly returns

1. Obtain a summary statistic of the overall period for all of the indices (mean, standard deviation and number of observations)
2. Do the first regression of the overall period (2002 - 2020) for each of the 4 indices according to the formula:

AR = B0 + B1iD1 + et,

where B0 is an average monthly return of all other months except for January; B1iD1 is an estimated coefficient representing a dummy variable (B1iD1 = 1 for January returns, B1iD1 = 0 for the returns of the other month).

The idea is to be able to compare the average monthly returns of January (B1D1) with those of other 11 months (B0). If the B1iD1 coefficient is positive and statistically significant, then we can indicate the January returns are higher.

1. Obtain the summary statistic of the data, but now the data should be separated by 4 periods which are:

* Pre-crisis period (January 2002 - December 2007)
* Crisis period (January 2008 – December 2009)
* Post-crisis period (January 2010 – December 2014)
* The latest period (January 2015 – December 2020)

1. Run a regression of each of the 4 indices with respect to the 4 periods mentioned above (PFTS - regression of the pre-crisis period, regression of the crisis period, regression of the post-crisis period, regression of the latest period and same applies to the other three)

Regression equation is the same: AR = B0 + B1iD1 + et

1. Run a new regression for all of the 4 indices, of the overall period (2002 - 2020):

AR = B1iD1 + B2iD2 + B3iD3 + B4iD4 + B5iD5 + B6iD6 + B7iD7 + B8iD8 + B9iD9 + B10iD10 + B11iD11 + B12iD12 + e

Where AR is an average return of a particular index; D1 – D12 are dummy variables representing a specific month of the year according to their number (D1 = 1 for January returns, D1 = 0 for any other month return, etc).

Now, that should be possible to compare the January returns with each specific month of the year.

Note: there’s also a need to check the data for the heteroscedasticity and first order autocorrelation using Durbin Watson and White’s test. I want you to make comments on this test based on the obtained table, because I don’t know how to interpret it. If there is no heteroscedasticity or first order autocorrelation, it is fine, but otherwise there will be a need to fix that. And comment on the way it was fixed.

I would like to get the results as pictures of the STATA regression tables in a Word documents with the corresponding titles and comments.