Note: from the Data I should only do country **Italy**, because every student has to do only one country and mine is **Italy so please drop the rest of the countries.**

REQUIREMENTS

Assume that after your graduation from University, you are an interview candidate with one of the largest investment companies. One of your tasks during the interview stage is to build a trading strategy based on MSCI index. The project will be conducted in STATA.

The MSCI index is different to each candidate/student

sample 1st January 2005 to 31st December 2017. These data are collected from Datastream.

The project needs to be written in the form of an academic journal like Journal of International Money and finance. The number of worlds should 1700 only. It must have short introduction, literature review related to trading strategies and presentation of the models used in the answers of the questions, data, and results and finally conclusions. The quality of the paper, presentation, coherence, and structure are evaluated.

Below you will find all the details of the actions that you need to do for modelling and dealing with the data. You need to answer all of them inside your paper.

1. Load all data into STATA
2. Explain carefully how you compute the returns of the index and then: a. Compute and report keysummary statistics.
3. How do the summary statistics compare to Georgopoulou and Wang (2017)?
4. Are your returns ‘normal’? How do you test for this?
5. What is seasonality?
6. Check whether returns are significantly higher in the month in January, compared to other months of the year.
7. Check whether there is a significant ‘Halloweeneffect’ similar to Jacobsen and Visaltanachoti (2009).
8. Clearly specify the null and alternative hypotheses as well as the chosen significance level before interpreting the results.
9. Estimate a regression of current returns on a constant and the 1-month laggedreturnon the same MSCI index. a. Present the regression results and discuss the economic and statistical relevance of these results.

b. Using the sign and coefficient of the slope parameter, propose a profitable trading strategy. For instance, if the coefficient is positive what market position should be taken in the following month?

1. Re-calculate part 3) but regress the current returns on the 2-, 3-, 4-, 5-, 6-, 7-, 8-, 9-, 10-, 11- and 12-month lagged returns separately. Present your results in a meaningful way and explain them.
2. Provide summary statistics of the returns generated from each of the 11 different trading strategies (there are 11 different strategies since you will conduct 11 different regressions).
3. Is the average return of each of the strategies statistically significant? Find the optimal lag in your series using the appropriate test.
4. Regress the returns of each strategy on a constant i. Are the residuals autocorrelated? Explain how you test for this and explain what are the implications on the (1) parameter estimate and (2) the standard error of the regression.
5. Test the stationarity or non-stationarity of your index and MSCI of World using the same number of observations in each estimation using the appropriate unit root test (like Dickey-Fuller or Augmented Dickey- Fuller unit root test) In each case, use the Akaike Information Criterion to select the appropriate order (lag- length) for the DF/ADF(p) test, starting from p=12 and reducing p in steps of one as far as possible. Include a time-trend in the Dickey-Fuller autoregressions and test whether it is significant. Remember to use the same number of observations in all DF/ADF autoregressions. What are your conclusions with your profitable strategies? Are your trading models improved considering the stationarity of your index? Explain.
6. Test for the existence of a cointegrating relationship between your MSCI Index and world Index using the Engle-Granger two-step residuals-based procedure. Build the model, find the optimal. Determine the optimal lag-length for the test as in exercise (6), by using the Akaike Information starting from p=12 and reducing p in steps of one as far as possible. Remember to use the same number of observations in the DF/ADF autoregressions (to make the AIC comparable across regressions). Do not include a constant or a trend in neither the DF/ADF autoregressions, nor the Engle-Granger test (the dependent variable is the first difference of the residuals in the former, and the residuals in the latter, both of which are untrendedand centered aroundzero).

Comment on the implications of this cointegration test for the validity of your results.

1. To compare the performance of your strategies over time, split the full sample of your trading strategy returns (same as part 5) into two subsample periods, namely subsample 1 from January 2005 to December 2010 and subsample 2 from January 2015 to December 2020.
2. Again, present the key summary statistics of the two subsamples.
3. Formally test the null hypothesis that the average return is the same for the two subsamples.

What conclusions can you reach?

1. Give potential explanations why your results may be different in the subsample periods.
2. What are the sources of the returns?
3. What is the relationship between the returns from each strategy and the buy-and holdstrategy? Are they statistically different?
4. How did the strategies perform during booms and busts:

i. From the original data, propose a method for determining periods of boomsand busts and then determine how the strategies performed during these periods.

## [75 MARK TOTAL]

Note: The Stata code has to be attached in the appendix of the paper.

## References

Georgopoulou, A., Wang, J. (2017). The Trend Is Your Friend: Time-Series Momentum Strategies across Equity and Commodity Markets. Review of Finance, 21, 1557-1592.

Jacobsen, B., Visaltanachoti, N. (2009). The Halloween Effect in the U.S. Sectors. The Financial Review, 44, 437- 459.