Assignment

Decision concerning optimal asset allocation is a common problem within asset management. In this assignment you will develop an asset allocation strategy to decide whether you should be long(buy), neutral(no position) or short(sell) on equity markets over the next month. To elaborate, at the end of each month, based on the information available in the features, would it be profitable to buy, sell or be neutral on the equity index?

In the attached file **"Data_MultiAsset.xlsx"**, you are provided with a monthly multivariate feature set (Jan 2000 – Dec 2020) , including various indicators (economic, technical, sentiment etc.) that are considered drivers of global equity market. Sheet named **"Index"** contains the MSCI All Country World Index (widely used index of global equity markets). Sheet **"Features"** contains rest of the data. You are free to select any method you like to identify important features and construct an allocation model.

Strategy Evaluation and Reporting

1. Please provide *at least* the following metrics of your final asset allocation strategy.

Evaluation Metrics	
Annualized Sharpe Ratio (SR)	
Maximum Drawdown	
Largest Monthly Gain	
Largest Monthly Loss	
Average Rolling 3 year SR	

2. Summary of important features based on your model. Choose any method to describe/report the important features.
3. Any relevant graphs and plots, example wealth index (strategy performance), rolling performance metrics etc.

Important Note

The Assignment evaluation consists of three components

1. Description of the approach taken.

2. The associated code (preferably in **Python**, but feel free to choose one you are expert in).

3. Delivering the results and outputs.

The grade of this assignment would be a number, $G \in [0,1]$ and is computed as $G = \frac{(D+C+R)}{3}$, where $D, C, R \in [0,1]$. The grade, $G \geq 0.65$ will be considered for next rounds of interview.

- The number "D", evaluates the description. Candidates are expected to clearly state planning steps, assumptions, data treatment, methodology and conclusion. Please adhere to a maximum of 2 pages.

- The number "C", evaluates the coding style ; whether it is modular, readable, well documented and error free. Do mention the necessary technical requirements (packages) for us to run the code seamlessly.

- The number "R", evaluates the delivery of the outputs. Reproducible reports, result structure/format, use of visualization tool (if any).

Submission Guidelines

1. Create a folder "**FirstName_LastName**"

2. Create one main function, "**S_Main.***". Ensure main script runs the whole project within the folder.

3. Save the description, in pdf format ,"**Description.pdf**". Put it in the same folder with the codes. If there are other relevant files containing results (.csv,.xlsx…) or packages, support files, graphs or functions put in the same folder.

4. Zip the folder "**FirstName_LastName.zip**", attach it to email and send it to elise.kapper@nn.nl. Have the subject as "**Assignment Data Science – Multi Asset**".