STATISTICAL METHODS IN FINANCE 2022/23 – ASSESSED COURSEWORK (GROUP PROJECTS)

- **A group consists ideally of 4 students. Each group will work on one of the projects below.**

- **Deadline 1: Friday 18th November 2022 5pm. Send me one email:**
    - **Name of the students in the group**
    - **Top 4 choices of paper (ranked) from the list below**
    - **Nickname of the group**

- **Deadline 2: Friday 20th January 2023 at 1pm:**
    - **Report in PDF (written in LaTeX), maximum 10 pages**
    - **One IPython notebook, with Python code**
    - **Potential additional data**

- **Grading:**
    - **Clarity of the report, of the code and of the explanations**
    - **Analysis of the results / Be critical**
    - **No Plagiarism**

- **NOTES:**
    - **The coursework is an open-ended task with scope for each group to show initiative. The aim is to present an overview of the main results of the paper, to analyse the methods used and offer a critique of the methodology and main conclusions. Where appropriate, you may wish to repeat or verify the numerical results by producing your own notebooks.**
    - **Some papers are more technical than others, and this will of course be considered in the grading**
    - **The main criterion to select a topic is the interest you have in it**
    - **For some papers, there might already be code available on the Internet. You are free to use them, obviously, but you should make sure your IPython notebook is clear and commented properly**

- REPORT GRADING SCHEME

o Clarity of the report, of the code and of the explanations (Advice: use the spell-checker and read it carefully yourself).

o Analysis of the results / Be critical! A "negative result" (the model does work on every time period / on other data sets) is also a good result.

o Quality of the graphs / pictures / plots.

o No Plagiarism: use your own words and do not copy/paste the original paper.

o Graphs: insert them as eps files, not as jpeg / pdf / png. The eps format is higher quality and much more compact.

o Some papers are more technical than others, and this will of course be considered in the grading.

o If you use code from the Internet, this is fine, but be sure to integrate it properly, explaining it and adding comments.

o All the members of a group will get the same grade.

- SUBMISSION

o 1 zipped file with all the files:

• Report in PDF (written in LaTeX), maximum 10 pages

• One IPython notebook, with Python code

• Potential additional data source files

o The zipped file should be uploaded on https://fileexchange.ic.ac.uk/

o Send me the link for download before Friday 20th JANUARY 2023 1PM London time

LIST OF PROJECTS

[Click here to link to spreadsheet](#)

Please nominate your preferences (leaving your name!) at the link. It will help you find classmates who are interested in the same projects.

ID	Authors	Topic
1	Moritz Duembgen & L. C. G. Rogers	Estimate Nothing
2	Jim Gatheral, Thibault Jaisson & Mathieu Rosenbaum	Volatility is rough
3	L. C. G. Rogers	Things we think we know
4	Rama Cont and Purba Das	Rough volatility: fact or artefact?
5	L. C. G. Rogers	Sense, nonsense and the S&P 500
6	Buehler, Horvath, Lyons, Arribas, Wood	Generating Financial Markets With Signatures
7	Bodnar, Lindholm, Niklasson, Thorsén	Bayesian portfolio selection using VaR and CVaR
8	Lemercier, Salvi, Damoulas, Bonilla, Lyons	Distribution Regression for Sequential Data
9	Anderson, Noss	The Fractal Market Hypothesis and its implications for the stability of financial markets
10	Chan, Chu, Nadarajah, Osterrieder	A Statistical Analysis of Cryptocurrencies

Accessing the papers, links and resources:

1. https://www.tandfonline.com/doi/abs/10.1080/14697688.2014.951678

2. https://www.tandfonline.com/doi/full/10.1080/14697688.2017.1393551

3. https://www.skokholm.co.uk/wp-content/uploads/2019/11/TWTWKpaper.pdf

Also video lecture here : https://www.youtube.com/watch?v=-Ha4lugBeLw

4. https://arxiv.org/abs/2203.13820

5. https://link.springer.com/article/10.1007/s10203-018-0230-3

6. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3657366

7. https://doi.org/10.1016/j.amc.2022.127120

8. http://proceedings.mlr.press/v130/lemercier21a/lemercier21a.pdf

9. https://www.bankofengland.co.uk/financial-stability-paper/2013/the-fractal-market-hypothesis-and-its-implications-for-the-stability-of-financial-markets

10. https://www.mdpi.com/1911-8074/10/2/12