

**WESTMINSTER BUSINESS SCHOOL**

**Module Title: High Frequency Trading**

**Module Code: 7FNCE025W**

**Host School of the Module: School of Finance and Accounting**

**Deadline: 8th May 2024 13:00**

**Individual Authentic Assessment**

**(Weighted 50%)**

**Assignment**

**Note:**

**Word Limit:** 2400 words excluding Title Page, Bibliography and Appendices. Except for quantitative answers, your word total for each answer should be approximately in proportion to the marks awarded to the question.

Write a report on finding the optimal pairs trading strategy for ‘BTC’ and ‘LTC’.

a) Download the same day high frequency historical data for ‘BTC’ and ‘LTC’’ by using **yfinance**. (It can be any day between 20th March 2024 and 30th April 2024, make sure you have the same length of the data. Set interval to ‘1 minute’.) And show the figures.

(10 marks)

b) Assume the , estimate the parameter .

(10 marks)

c) Set a reasonable and explain.

(10 marks)

d) Discuss your inputs. (It should include , and )

(10 marks)

e) Find your optimal trading weights. (Figure needed)

(10 marks)

f) Find your optimal cash process. (Figure needed)

(10 marks)

g) Compare the results with the static control pair. (You need to set a reasonable static control factors)

(10 marks)

h) Get one simulation of two assets, redo the previous steps and show the two optimal control factors. (Figure needed)

(20 marks)

**(Total: 90 marks)**

**Assessment Criteria**

In addition to the marks above you will be awarded 10 marks based on report writing, presentation and the python code (as appendices).

This is an individual coursework assignment, and Assessment Weighting for this individual assessment is weighted at 50%.

**Marking criteria:**

* Your marks will be based on your ability to:

- undertake critical financial analysis

- work independently, utilising your own initiative to undertake

the work e.g., finding sources of information, analysing different information

sources in different contexts etc.

-structure, organise, as well as general presentation of your report

-present a clear and concise report

* You are encouraged to make full use of all material available in the University and other sources, such as journals, newspapers, books etc. Any use of any data, reports, etc. should be correctly referenced by using Westminster Harvard.
* In order to answer these questions, you will need to conduct independent research, learn, and show an understanding of financial analysis. You should apply concepts that you have learnt in the module, and on finance courses in general, when answering these questions.

**Submission Instructions**

Student must submit the assignment via Blackboard by 8th May 2024.

Please note that your submission will be checked by Turnitin for plagiarism. The University reserves the right to investigate plagiarism and this may affect your marks and studies.

If you submit later than an agreed submission deadline then your submission will be marked in accordance with the current University regulations (if they apply); you may apply for ‘Mitigating Circumstances’ if necessary.