Peer 2
Algorithmic Trading on Multiple Trading Platforms

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1   PEER REVIEW

What is the project trying to achieve, why that is important and how is it different from previous work?

The objectives of the project are identifying and analysing current algorithmic trading strategies, and extending these strategies to increase their profitability in dark pools. Over the last decade, along with an increasing number of dark pools, more and more investors orders are being traded in these dark pools. Therefore, there are critical demands of developing algorithmic trading strategies to benefit from dark pools. A considerable amount of literature has evaluated the current published main adaptive trading algorithms, such as ZIP, GDX and AA. However, none of the previous works has investigated whether those trading algorithms can profit from dark pools. This project will focus on the performance evaluation of ZIP, GDX and AA trading in both dark pools and light pools.

How is the student going to approach the project and how will the student know if the project met its goals?

To better understand financial exchanges, limit orders will be studied. Bristol Stock Exchange (BSE) will be used to simulate the trading venue. Dark pools will be mainly studied, aiming to better understand the trading market. A simplified version of Turquoise Plato majority owned by the London Stock Exchange (LSE) will be the model of the test environment. As the competitors among the many different algorithmic trading strategies, ZIP, AA and GDX will be investigated and extended in the project. ZIP will be first improved to increase the gain. The same environment will be used to evaluate performance. The results of original ZIP and modified ZIP against AA and GDX will be recorded. From the comparison of the results, the project meets its goals if modified ZIP becomes more profitable.

How does the student plan to achieve the deliverables and mitigate risks, and is this planning approach appropriate?

In the first week, the simulator BSE will be set up on the local environment. Then GDX agents will be developed in BSE. In the fourth week, AA, ZIP and GDX will be investigated in the first place. The next two weeks will be used to build and test a dark pool trading venue in BSE. For each algorithmic trading strategies, ZIP, AA and GDX, one and a half weeks will be used to improve it and investigate the modified algorithm. The last two weeks will be used to write up the thesis. There are three risks that have been considered in the thesis. Considerable research and sufficient time to study and understand how BSE works will mitigate the risks of developing the algorithms and testing environment. Apart from that, the help and guidance from an expert will also help mitigate risks. Being unable to improve algorithms would be the biggest risk but it will be minimised by performing several studies and spending reasonable time planning.

How well was the research proposal presented and formatted?

The structure of the research proposal is well organized. The proposal started with clear aims and objectives of the project; briefly introduced the financial exchange; pointed out the necessity of this project along with the rise of dark pools; clarified the simulator and dark pools trading venue that will be used to set up experiment environment; identified the research targets - the algorithmic trading strategies, ZIP, GDX and AA; presented the process of how the experiments will be done; and provided a plan of how to improve the three algorithms. Finally, risk analysis and a Gantt chart are added at the end of the proposal. However, there are some errors in the structure of the research proposal. To my understanding from the reading, I assume '4. TESTING' is a part of 'LITERATURE REVIEW/TECHNICAL BACKGROUND', hence it should be '3.5 TESTING'. Moreover, there is some lack of information in references from number 9 to number 17.

What should be improved before the student embarks on their project?

It seems that there is some misunderstanding between the light pools and limit orders so more research of light pools would be beneficial. There is not much information about what kind of trading venues are used in previous works. Therefore, more details about the experimental environment used in previous works would better distinguish the contributions of this project from others. Risk analysis can be extended in further work. For example, how to evaluate the quantity of experiment - perhaps the tests are not enough.

Give a mark out of 100 using the modified thesis project marking scheme and justify the mark given.

I give 63/100. Good knowledge and understanding of a specific financial market - dark pools. Wide reading about algorithmic trading strategies including ZIP, GDX and AA. The report is well organised with clear directions. However, there are some errors due to the lack of financial knowledge. For instance, Limit Order Book (LOB) is a kind of trade order, not a type of trading market. The expression of âĂIJoperating in both the LOB and dark poolsâĂİ is not appropriate.