ORIE 4741 - Project Proposal

Warren Blood, Anthony Peraza, Swastik Chaki

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Question

Can we increase our expected payoff from horse race betting? The popularity of sports betting has rapidly increased since the 2018 U.S. Supreme Court lifting of the federal ban on sports gambling. Mobile applications have also made sports gambling more accessible and widespread than ever before. My data science team sees a lot of potential in developing a service that would provide data-driven sports betting suggestions to customers. We have been focusing on horse racing because of the ample amount of publicly-available race data that exists. We would like to propose a data analytics project to see how successfully we can create horse race betting suggestions.

Data

The dataset we are planning to analyze is a compilation from free data sources of thoroughbred races held in Hong Kong. It contains two .csv files: one including information about specific races, and the other including information about specific horse performances (runs) within the races. Important features include:
Races:

 i Date

 ii Venue

 iii Surface

 iv Distance

 v Horse Ratings

 vi Dividends (Bet Earnings)

Runs:

 i Horse Age

 ii Declared Weight

Why This?

Using this information from our dataset, we believe that we will be able to predict the dividend of a horse's placing in a specific run, calculate the probability distribution of a horse's placing in that run, and create a payoff function that we will maximize. The results can then be used to provide suggestions for betting advice. We believe the increasing in popularity and accessibility of sports betting as an industry gives us great reasoning to pursue this project. Finally, once a proven model is established in the horse racing field, we can open up our options to other sports betting opportunities, i.e. football, baseball, soccer etc.