Making Profits
in Sports Trading Market

Presenter: Qiqi(Kristy) Chen

Background

What is sports trading?

Trading on sports is like trading stocks and futures in financial markets. In online exchanges based in the UK or EU, buyers/sellers are long/short bets with their preferred odds. The exchange matches their orders based on order book with different levels of orders. The 'underlying assets' of bets are various sports games.

Basic terms and concepts

Back: To place a bet for something to happen.

Lay: To place a bet for something NOT to happen.

Odds = 1.5 Stake = $1	Something happened	Something NOT happened
Backers	Get $1.5 back, including the stake	Get $0 back, Lose the stake
Layers(No need for stake)	Lose $0.5	Get $1

Background

Why this market?

-Various numbers of sports games (soccer, horse racing, tennis…), various leagues to trade.

-Large trading volume for each match. For hot games, the trading volume can achieve hundreds of thousands of dollars.

-More ‘individual investors’ and less ‘institutional investors’ may cause biased odds(Chance to make money!)

How to trade on this market?

-Find a licensed exchange for betting(BetFair) and get an account.

-Choose a sport market interested in and explore the leagues and games

-Place orders manually or automatically with money in the account.

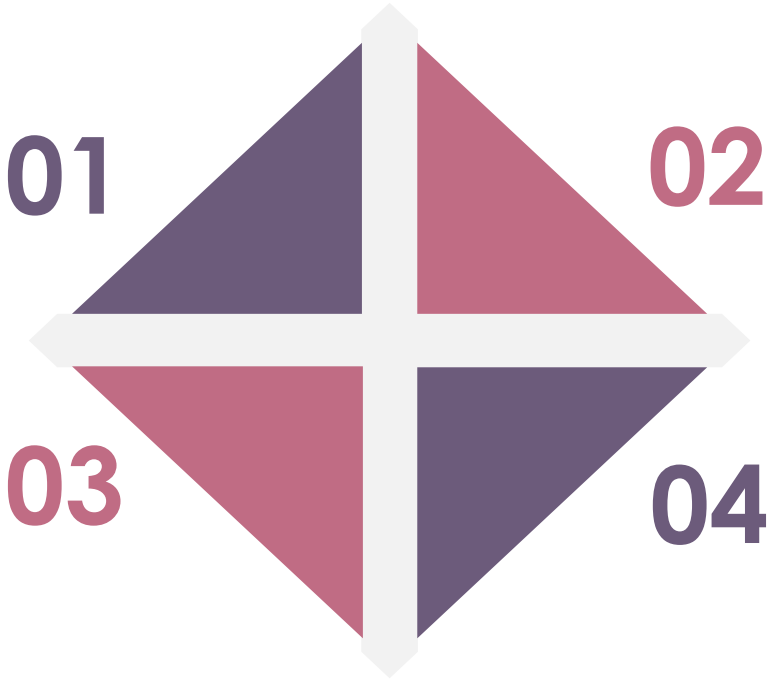
Method

How did I develop trading strategies for this market?

-Trade something that deviates from its intrinsic value. Here, an intrinsic value of a bet is a TRUE odds and 1/TRUE odds = TRUE probability of something to happen.

Trying to find the intrinsic value of a bet is just like estimating a stock's value by analyzing the underlying company's fundamental financial data. But here we analyze game players' data that influence the results.

Data Processing: I processed the text data collected, and built database for them with SQL for storage and future use. As for my project, I focused on 5 big soccer leagues and the database is really large which exceeds 500GB so I also applied parallel computing.



Data Collection: I Collected basic data such as teams historical results of matches and team player's scoring rate in soccer games, via API or web crawling(using Python Beautiful Soup).

True Probability Estimating: Modelling the probability of something to happen by regressions or machine learning methods was my method for estimation. The gaps between player capacities can be the explanatory factor for the regression and something to happen can be the explained variable. (It's hard to make a model of high prediction accuracy because of the unpredictable nature of sports. But Some companies like Goldman have tried in world cup 2019!)

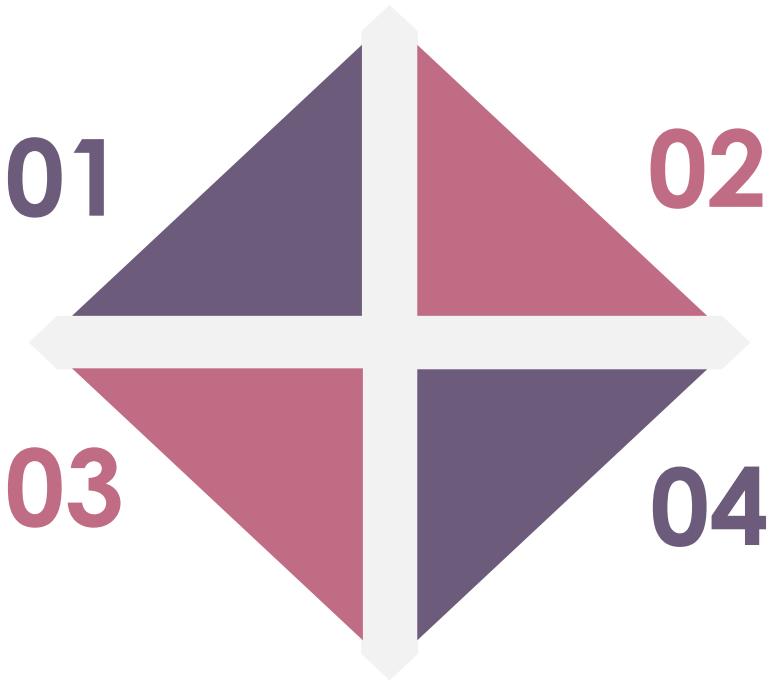
Method

How did I develop trading strategies for this market?

-There can be another quick way to make money from this market. Odds will go up and down before game starts and is in play. So make use of odds range, long and short bets at favorable odds.

Basically stock market and sports betting market have something in common. Stock price moves around its intrinsic value because information causes traders to adjust their positions, and betting odds varies because the underlying game provides a large amount of information.

Data Collection and Processing: I collected trading data(Tick Data) including order books and traded orders from exchanges, after which I reorganized the data into data frames. With trading data reflecting price and volumes, detecting the most active trading period was much easier and I explored how to make profits during this period.



Also, the stock price has some moving patterns like momentum and reversal with no new information occurs. So as the odds. So I made some assumptions about odds moving pattern and then tested them.

Indicator and Strategy Construction: Indicators reflecting an odds moving pattern can be calculated from lines of bid, ask and traded price and volume data. Based on assumptions, strategies determined the position of next moment corresponding to the indicator calculated.

Back Testing System Construction: To back test the strategy , I created event-driven back testing system to summarize the profit and loss of my strategy.

Results

Some strategies do make profits in this market.

-Suppose we have a soccer game between two teams of great disparity, then odds of the likely winner will continuously go down before game starts because traders will flood into this market to back the likely winner, and the strategy uses this odds range to make money.

-Also, when the game is in play and the likely looser of the game scores a goal, the moving pattern of the odds of that team also creates a chance to make money. But there is no official information source for these major events like goals and fouls. So the strategy is much more complex because we may need to collect some information from game lives.

-One of my strategy designed for the 5 biggest soccer leagues in the world achieved about an approximate average annual return of 35% in back testing.

Thankyou

Any questions?