

Bet Against the Grain?

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Introduction

“The House always wins” is a ubiquitous concept in gambling stemming from the law of averages, ultimately meaning that because every bet is set with the odds against the gambler winning, over a long enough period, the gambler will always lose to the casino. However, casino gambling and sports betting fundamentally differ in nature. With cards, dice and slots, the odds are always the same and can always be objectively calculated through plain mathematics.

Alternatively, when betting on which horse will come in first or which sports team will win it all, odds are subjective. Because of this, the sports gambling companies cannot set their odds and betting lines with complete certainty that they are accurate and will reap a profit. Due to this uncertainty, there seems to be a greater likelihood that the bettor can come out on top or put him or herself in a position to be in the green in the long run by exploiting strategies that act upon errors in the lines and odds.

When setting up bets, gambling companies usually set an initial line with a limit to the amount that can be bet on it. Then, as bets come in, the companies adjust their lines to try to get an equal amount of money or bets on each side to ensure they walk away with a profit at the end of the day. However, because they adjust their lines to the public’s betting movements, it is reasonable to think that it could be profitable to bet against the dominant public sentiment. A study from Nobel Prize winning psychologist Daniel Kahneman revealed that we make financial decisions based 90% on emotion and only 10% on logic. This can be easily translated to decisions in sports betting. Of the cognitive biases, the recency bias is an especially prevalent one in sports gambling that can sway public sentiment to one side or the other. When a team has had a few recent spectacular performances, spectators may be swayed to overrate this team,

overvaluing their recent performance. Thus, this research paper attempts to discern whether bettors can take advantage of the effect the recency bias has on the public by betting against the hotter team.

Literature Review

There has been plenty of research examining whether sports gambling markets are efficient. Winkler (1971) showed that bettors consistently underestimate the home field advantage, and Amoako-Adu, Marner and Yagil (1985) found that betting on the home underdog was profitable in their sample of NFL games. Golec and Tamarkin (1991) concluded that NFL spreads are systematically biased predictors of actual results. They found betting biases towards road teams and favorites, finding that all else equal, bets on underdogs and home teams win more often than not. Gandar, Zuber, O'Brien, and Russo (1988) however, did not find any statistical evidence of inefficiency in the NFL betting market but revealed evidence of economic inefficiency by showing proof of profitability of a few betting strategies. For example, they found a 57% win to bet ratio when betting against the majority of bettors for games the week after a successful week for the public. Additionally, they found it profitable to bet on the underdog facing a team that was a favorite in the previous week and covered the spread by at least 10 points. Moreover, Thaler and Ziemba (1988) found the prevalence of a favorite/longshot bias in racetrack betting. Finally, Gray & Gray (1997), found that the market overreacts to a team's recent performance, discounting earlier performances.

Data & Methods

The games I examined in this paper consisted of games 2-7 in every NBA playoff series in the past 4 seasons (2019-2022). Originally, the plan was to use the last 5 seasons, however, data were only attainable from the past 4 seasons. Game 1 of every series was omitted to ensure that every game is being played between teams that played their previous game against each other. This allows for an impression to be made on the public regarding how the two teams stack up against each other. The data was collected from bettingdata.com and consisted of the spread, which team won the game, which team beat the spread, and their previous results against the spread.

Results against the spread were taken for every playoff team from the past 4 seasons. From there, I calculated the win-loss record of betting against the team that beat the spread in their past game no matter how many games in a row they had beaten the spread. Then, I calculated the record of betting against the team that beat the spread in their past 2 games and past 3 games. Finally, I calculated the records of betting against the team that have exactly a 1 game win streak against the spread. After calculating the records, I ran 4 binomial tests, one for each subset of data. These tests were run to determine whether there is statistical or economic significance in betting against the hotter team. Additionally, I calculated the profit/loss of betting \$1 on every game using the various strategies of betting against the hotter team. My hypothesis is that betting against the team that has beaten the spread in their 2-3 previous games will be more successful than betting against the team that has only beaten the spread in their previous game due to the increased psychological momentum in the minds of the bettors.

Results

Table 1 shows the results for betting against the hotter teams. Looking at the totals we can see that no matter how much momentum a team had, betting against them was unprofitable and more likely to lose than win. Thus, from the data collected, it seemed favorable to bet on the hotter team continuing to beat the spread. I ran 4 Binomial Tests to determine whether there was statistical significance for any of the subsets of data. The first test was run on betting on the team that had beaten the spread in their previous game regardless of their winning streak against the spread ($n=1^*$). This resulted in a Z score of $-.367$ and a P-value of $.714$ which showed there was no statistical significance. Betting \$1 on every game using this strategy would have resulted in a loss of \$18.82. The next Binomial test was performed on betting on the team that has beaten the spread in their previous two contests ($n=2$). This test resulted in a Z score of $-.237$ and a P-value of $.813$ which is not statistically significant. Betting \$1 on every game using this strategy would have resulted in a loss of \$6.09. Next, I ran a Binomial test betting on the team that had beaten the spread in their previous 3 games ($n=3$). This test resulted in a Z score $-.385$ with a P-value of $.700$ which was not statistically significant. Betting \$1 on every game with this strategy would have resulted in a loss of \$4.09. Finally, a fourth Binomial test was run on betting on the team that had beaten the spread only in their last game but not the game before ($n=1$). This test resulted in a Z score of $-.234$ and a 2 Tailed P-Value of $.815$ which is not statistically significant. Betting \$1 on every game using this strategy would have resulted in a loss of \$11.27.

Table 1: Win-Loss Record & Profitability Betting Against the Team that Beat the Spread in Their Previous n games

	2022	2021	2020	2019	Total	2 Sided P-Value	P/L \$1 Bets
n=1*	34-34	34-36	28-32	34-35	130-137	0.714	-\$18.82
n=2	11-8	9-10	7-9	7-10	34-37	0.813	-\$6.09
n=3	3-1	3-4	3-4	3-6	12-15	0.7	-\$4.09
n=1	20-23	19-24	19-19	22-18	80-84	0.815	-\$11.27

Discussion

Overall, the results clearly indicated that over the past 4 NBA playoffs, it has not been a profitable or winning strategy to bet on or against the hotter against the spread. This was even so for longer streaks of 2 or 3 games of beating the spread. All Binomial tests indicated that these strategies were neither statistically significant nor economically significant. Ultimately this result makes sense. Estimated to be an over \$90B marketplace, sports gambling is far too big of an industry to not price in any psychological momentum or cognitive biases that could be affecting the masses and allowing for exploitable opportunities. Any streaks or change in public perception is the works of bookmakers to price into the lines in order to even the odds. Thus, it remains unlikely that in such a grand market, readily exploitable opportunities exist. Limitations of this study that would be interesting to investigate in future research include statistics on the % of bets and money being placed on either side of the line. This data unfortunately was not accessible on the internet but would be very insightful to understand just how much psychological momentum is affecting the bettors' belief in a certain team or outcome.

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