The WAGER Vol. 5(38) – Fall Classics: Streaks, Odds, and Outcomes

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As the boys of summer aggressively slide into the fall playoff races, gambling baseball fans across the country will use this opportunity to step up to the plate and bet on their favorite team to win it all. In spite of it being illegal outside of Nevada, this fall ritual is common to major league baseball's playoff season, as are some betting misconceptions. Betting on the significance of streaks is one such example.

According to Gordon Wood (1992), streak effects are not significant predictors of game outcome. As such, bets on teams with specific positive or negative streaks may be less successful than originally thought. Specifically, due to widespread misconceptions regarding information common to streak outcomes, the public over-bets teams that are "hot" and, conversely, under-bets teams considered "cold" (Wood, 1992). While to some sports fans and baseball people believe this streak theory rests out in right field, its validity has been tested and supported by evidence.

There are specific factors that influence betting odds and game outcomes, including team record, starting pitcher's record, starting pitcher's earned run average, average runs scored per game, and team earned run average. As the table below reveals, the correlation between each of these factors when compared with quoted odds and game outcome is statistically significant. Streak patterns also are statistically related to odds, but not to game outcome (Paulson, 1994).

Correlations for Factors Influencing Game Odds and Game Outcome		
Factor	Game Odds	Game Outcome
Team Record	0.72547*	0.09928*
Starting Pitcher's Record	0.55353*	0.09802*

Starting Pitcher's Earned Run Average	-0.40822*	-0.05012*
Average Runs Scored per Game	0.46178*	0.05788*
Team Earned Run Average	-0.56700*	-0.08424*
Streak	0.31578*	0.00487

*Correlations are statistically significant, N=2223, p<.0001

The statistical significance reported above masks an even more meaningful finding. The performance factors in the table above explain most of the total variance associated with quoted odds. However, these very same factors-while statistically significant-explain almost none of the total variance associated with game outcome.1 What does this mean? A handful of baseball performance factors can be used quite effectively to predict the odds that will be quoted for a particular game, but cannot be used to predict the outcome of that game.

In spite of these findings, both bookmakers and bettors often use streaks and other performance patterns as major factors in determining game outcome. These results challenge the conventional wisdom among sports bettors and suggest that information pertaining to streaks in particular is "incorrectly" incorporated into odds calculations: quoted odds reflect the betting public's perceptions regarding the probability of victory for each team (Paulson, 1994). These perceptions, however, are misguided since they rest on an overestimation of the correlation between team performance factors, streak and game outcome. Misguided perceptions lead to unwise betting behaviors that benefit the bookmaker more than the bettor.

Research suggests that pathological gamblers might be more likely to misperceive the relationship between streaks and game outcomes than the casual bettor since disordered gamblers have more difficulty understanding independent events and the concept of randomness (e.g., Ladouceur, Paquet, & Dube, 1996). If this observation is correct, then the "house" gains an even bigger advantage over disordered gamblers who bet more on the perceived connection between streak and game outcome than does the general public.

Given the popularity of sports gambling in the United States, it also might be likely that the misguided reliance on streaks to predict game outcome contributes to the development of gambling disorders. Although speculative, the misperception of streak significance can propel young gamblers-often those

whose first betting experience is on sporting events-toward a gambling problem since they develop an inaccurate sense of their skill and control over the outcome of sporting events. Nevertheless, much more research is necessary to examine this relationship, as well as the other effects that the insignificant correlation between streak and game outcome have on the gambling community. In spite of this need, programs designed to prevent or minimize gambling disorders can provide gamblers and non-gamblers alike with more information about the mathematics of gambling in general and streaks in particular.

Notes

1 A subsequent WAGER will provide a primer on the difference between statistical significance and statistical meaningfulness.

References

Ladouceur, R., Paquet, C., & Dube, D. (1996). Erroneous perceptions in generating sequences of random events. Journal of Applied Social Psychology, 26(24), 2157-2166.

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