Testing Market Efficiency in the Major League Baseball Over-Under Betting Market

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In the November 2002 issue of this Journal of Sports Economics, Brown and Abraham examined market efficiency in the Major League Baseball over-under market from 1996 to 2000. A simple strategy of betting streaks was found to be profitable in 1997 but was not found to be profitable before or since. The authors attribute this profitability to changes in the structure of baseball game scheduling during that season, specifically citing the introduction of interleague play, expansion of teams, and realignment. The authors argue that the market is efficient, however, because the strategy was not found to be profitable after 1997.

There is a serious problem with the data used in the Brown and Abraham study. The data on the total (the over-under) of Major League Baseball games used in their article to calculate profits or losses is not complete. In football and basketball, bets on totals occur at consistent odds. Bettors may wager that the points scored will be over or under that total, laying $110 to win $100 in each case. In baseball, like hockey, totals are posted with an odds adjustment. Because of the smaller variance in scoring outcomes in baseball compared to football or basketball, when the flow of bets on the over and under would not be balanced at a particular total, bettors must lay additional money on the more popular side of the proposition. For an example, we will use an actual total that was obtained from noted handicapper Jim Feist’s offshore connection line tracker, available on his website (www.jimfeist.com). Line tracker notes all line movements that occur throughout the day on each game from various sports books, both offshore and on the Las Vegas strip. The fol-
lowing line was obtained from the Stardust Sportsbook in Las Vegas at 9:07 a.m. (Pacific) on March 31, 2003:

NY Yankees at TOR Blue Jays  8.5o-130.

The over bettor in this case must lay $130 to win $100 on a bet that the game will go over 8.5 runs. The under bettor will lay $100 to win $110 if the game goes under 8.5 runs. The odds adjustment to the total is common, as noted on Jim Feist’s guide to betting baseball:

Baseball totals are fairly straightforward, but due to the nature of scoring in the sport, a money line is usually attached to the number as betting becomes unbalanced on a side. The money line attached will work on a 20-cent line, rather than the dime line used for baseball sides.

Total lines will frequently appear with either an over or under followed by a money line (generally just showing the cents, rather than the full dollar amount. 7 1/2 over 20 means 7 1/2 over -120). When a total is followed by an “over”, then the over bet is considered the favorite, and bettors will have to wager more to win a dollar. Using the above example, a bettor wanting to wager over 7 1/2 runs will have to lay $1.20 to win a $1.00. In the same example, a bettor wagering under 7 1/2 runs would then be betting EVEN money (a 20 cent difference from the OVER wager). Conversely, when a total is followed by an “under” and then a money line, consider the under wager a favorite - a wager on the under will force a bettor to bet more money to win a dollar, with a more favorable price given to “over” bettors.

A total that lists no over or under attached to the number is considered “flat” and a wager of -110 to win $100 is required on either side. (see http://www.jimfeist.com/MLB/BaseballBetting.htm)

Brown and Abraham obtained the baseball totals used in their study from Comprehensive Sports Information Limited’s Web site, www.covers.com. Comprehensive Sports Information Limited obtains the closing totals and lines used for their Web site from the Stardust Sportsbook in Las Vegas, Nevada. Unfortunately, www.covers.com presents the total without the odds adjustment on its past results pages.¹ These odds are pivotal to any study of market efficiency in the calculation of returns to a betting strategy.

Because the odds adjustments were not available for past data, we compiled all line movements for the Stardust Sportsbook through line tracker (www.jimfeist.com) for the first 2 weeks of the 2003 Major League Baseball season to examine the frequency of games that occur without an odds adjustment. In 166 games played between March 30 and April 12, 155 games had a closing total posted with an odds adjustment, whereas only 11 games (6.6%) were available at flat odds.² The odds adjustment to the total is an integral part of the price in this financial market, which should not and cannot be ignored. Baseball total gamblers realize that winning percentages below 50% can still be profitable when they are getting odds and likewise
know that winning percentages above 50% can still lead to losses, because the odds
determine the actual payouts.

Aside from the incomplete data, there is an additional problem with the tests for
efficiency in the Brown and Abraham study. The implied commission of the sports
book is not correct. A 20-cent line is common in baseball totals, not a 40-cent line,
as implied by the authors, when they stated, “A winning bet of $1.00 wins $1.00,
but a losing $1.00 bet loses $1.20” (p. 315). At flat odds, a losing $1.00 bet will lose
$1.10. As noted above, in the quote from the guide to baseball betting, there is a 20-
cent difference between the odds on the over bet and the odds on an under bet. From
this information, it can be seen that the use of a simple break-even point of 54.5% is
not the proper test for efficiency, even for flat-odds games. Tests for market effi-
ciency or for profitability must include the odds on the bet and the proper sports-
book commission to calculate both actual and expected returns from a given betting
strategy. Only then is it possible to determine if violations of the efficient market
hypothesis actually exist.

Without the corresponding odds adjustments, studies of market efficiency in
baseball totals have no meaning. It should not be surprising that profitable strate-
gies appear to be present when odds are ignored, given that the odds adjustment is
the mechanism used to even the flow of betting action on each side of the total for
the sports book. Any discussion of the impact of interleague play, expansion, and
realignment in 1997, or of the apparent efficiency found in the other years of the
study, is moot, given that the data used for analysis lacked the odds component of
the total.

NOTES

1. We contacted Comprehensive Sports Information Limited about this discrepancy in the past, and
they informed us that the odds adjustment is available for each game daily in the Current Odds section,
but they do not have a past log of the totals with odds for their past results section. They did inform us,
however, that they hope to include this information in the future.

2. If one were to search continuously for flat odds, they are still very difficult to find. From the time of
the opening of the total to the closing of the total at the Stardust Sportsbook, 106 of 166 games (63.8%)
ever had flat odds at any time during the day.

REFERENCE