

# THE KELLY CRITERION IN BLACKJACK, SPORTS BETTING, AND THE STOCK MARKET

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## ABSTRACT

The central problem for gamblers is to find positive expectation bets. But the gambler also needs to know how to manage his money, i.e. how much to bet. In the stock market (more inclusively, the securities markets) the problem is similar but more complex. The gambler, who is now an “investor”, looks for “excess risk adjusted return”. In both these settings, we explore the use of the Kelly criterion, which is to maximize the expected value of the logarithm of wealth (“maximize expected logarithmic utility”).

The criterion is known to economists and financial theorists by names such as the “geometric mean maximizing portfolio strategy”, maximizing logarithmic utility, the growth-optimal strategy, the capital growth criterion, etc.

The author initiated the practical application of the Kelly criterion by using it for card counting in blackjack. We will present some useful formulas and methods to answer various natural questions about it that arise in blackjack and other gambling games. Then we illustrate its recent use in a successful casino sports betting system. Finally, we discuss its application to the securities markets where it has helped the author to make a thirty year total of 80 billion dollars worth of “bets”.

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