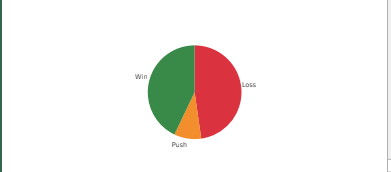


Can Blackjack Be Profitable?

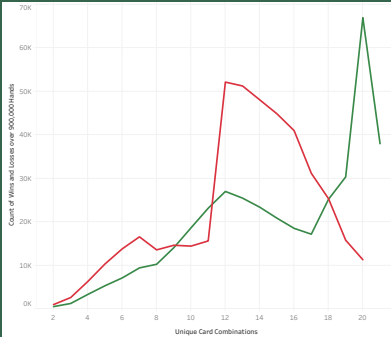
Casinos are a staple around the world to give players a chance to use their luck, skill and probability to make money. The chase of riches people dream of leads us to try different methods to make more money and this is why casinos are so prominent across the world. This blend of psychology and mathematics is used to prey on players and make the casino billions of dollars a year. One of the most popular games is blackjack; a simple goal of either having a higher sum than the dealer or hoping the dealer hits above 21, effectively doubling the money risked. Even as simple as blackjack sounds, the casino's rules gives the edge to the dealer, making it very difficult for the player to come out profitable. Here, we find why winning is so hard, and if ladyluck is the only way to leave the casino happy.

Pushing Does Not Help The Player!



Using a simulation of 900,000 hands of blackjack, we find that the dealer wins 48% of the time, while the player wins 43% of the hands and both player and dealer come out even in 9% of hands through the push. Pushing in blackjack occurs when the dealer and the player have the same total sum of cards, which results in the play going null as the player receives the money they wagered back. Considering a push is not necessarily negative, some players may think the player may have an advantage over the dealer at 52%, but since most money retained in a push is reused by the player, the dealer has a strong 5% edge over the player. If a player plays blackjack over the course of a long period of time, these pushes will eventually go against them as most of the money returned will be bet on a losing hand.

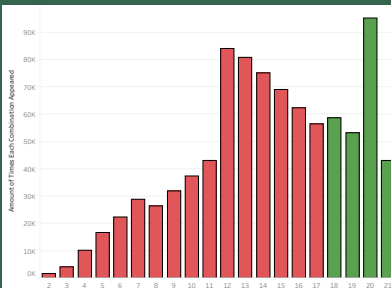
How Many Initial Card Combinations Give You a Winning Edge?



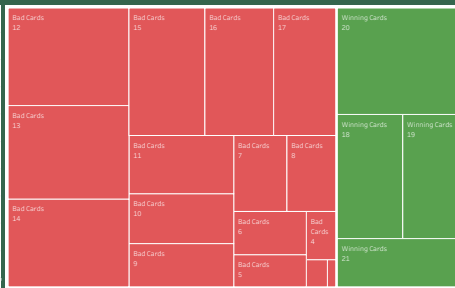
18,19,20,21

From the 19 different combinations the player can get in their first two cards, only three give you better odds at beating the dealer, being 19, 20, and 21. Although 18 does give you very close to an even chance of a coinflip win, the odds are stacked against the player. The data shows that 20 is the most common combination which is caused by the face cards (king, queen, and jack) which does help the player, but when we compare the winning combinations we can get, the player will still have to face a losing hand a lot more often. Blackjack has many ways to give the player hope, but even when we have winning hands, the dealer can still bust the whole table.

What are the odds of getting 19, 20, or 21?



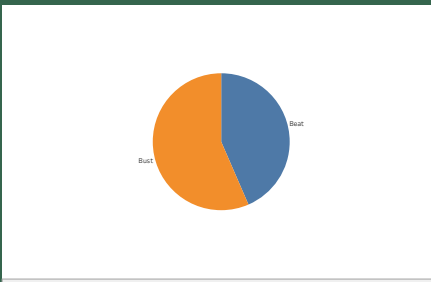
Bad Cards Versus Good Cards



From the data, we can see the odds of getting 20 is the highest and could make you think that we have a good chance at beating the dealer, but when we compare 19, 20, 21 and even 18 compared to the other combinations, the chance of the player getting a losing card combination is over 70%, putting us at a strong disadvantage. Tricks like this is what gives players a lot of confidence when they enter the casino, but the dealers know the traps that are set in blackjack and causes players to lose a mass amount of money.

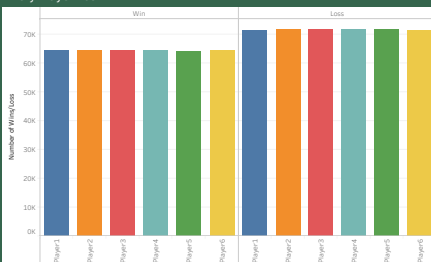
Through pure odds, blackjack seems impossible to come out profitable in, but we can use what we know to decide when to draw another card or when to stand, and hope the dealer busts, giving money back to the table. Smart choices from the player will help us fight back but ultimately, we are in a losing battle.

Should We Stand or Draw?



Our best strategy is to stand on bad cards and hope the dealer busts. In blackjack, the advantage the dealer has is that the player must draw first and risks drawing another card and busting, without knowing what the dealer's second card is, but if we stand on bad combinations such as 12, 13, or 14 we can test our luck and hope the dealer busts, instead of immediately losing before the dealer's second card is shown.

Every Player Lost!



Although, we can use our best strategies and math to win, and we will enjoy plenty of wins over a long period of time, the small edge percentage the casino holds gives them an enormous advantage over a long term, and over several players. The dealer can face up to six players at a time and with the winning advantages held, luck can work for only so long until probability wins out and this small difference in wins is what earns them millions. As we can see six players faced the dealer at a time, and even with relying on luck, the edge that the dealer gains resulted in each player leaving with less money than they started with. Unless we look at our ways, such as card-counting (banned in almost every casino) or pure cheating, don't expect to come out the casino a richer man.