



Understanding Equity

Equity: Your probability of winning a hand, i.e. how often your hand will win the pot if all cards are dealt and the players go to showdown.

- Equity is our share of the pot if a hand is played to showdown.
- It tells us how much we expect to win in the long-run, based on how often we should win.
- Furthermore, it's based on probability and odds.
- Since poker is a form of gambling, we often think of equity as a dollar amount, or more specifically, our long-term rightful share of the pot, but we can also think of it as a percentage.



Equity: Coin Flip Example

- Let's use a simple coin-flip example to demonstrate the concept of equity.
- When you flip a coin and choose either heads or tails, you expect either heads or tails to hit 50% of the time over the long-run.
- In other words, if you pick tails and wager on it, you expect to win 50% of the time.
- Therefore, you have a 50% equity, or chance of winning, in a coin-flipping wager.

Equity: \$1 Coin Flip Wager

- If you wager \$1 on a coin flip, you expect to win \$0.50 in the long run.
- Why? Your equity is 50% of the pot:
- **Your Coin Flip Equity:** $\$1 \text{ Wager} \times 0.50 \text{ Probability of Coin Landing on Tails} = \0.50
- Therefore, your equity can be expressed as a percentage or a dollar amount:
 - **Percentage Equity:** 50%
 - **Dollar Amount Equity:** \$0.50



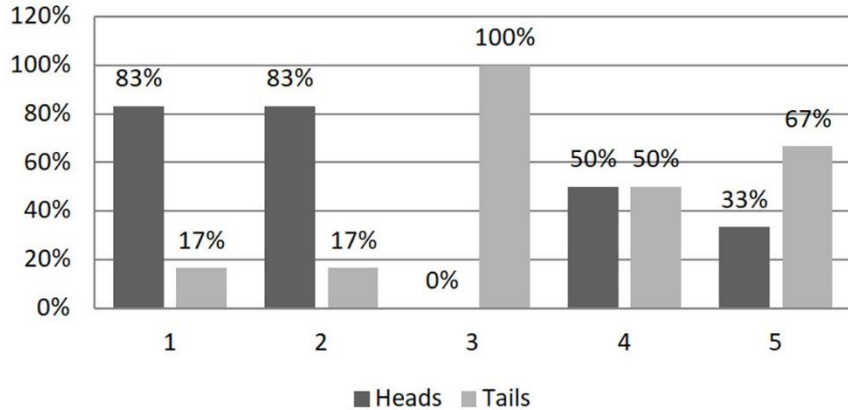
The Equity Caveat: Variance

Variance: The upswings and downswings in poker. More definitively, it's the difference between individual results in the short term and the average set of results we expect to see in the long term.

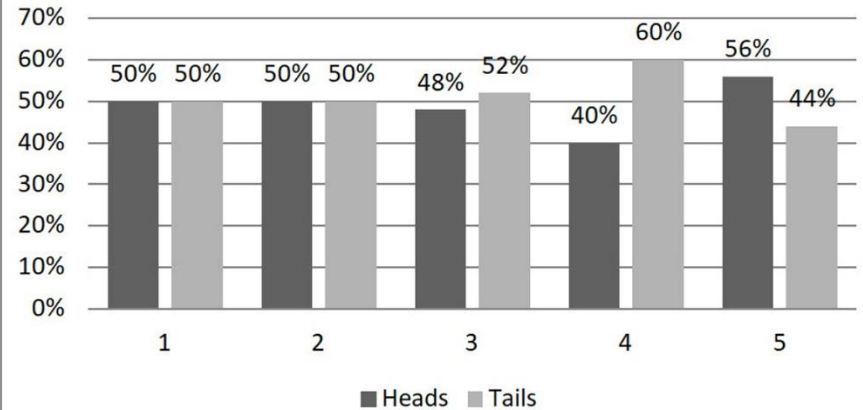
- This means that mathematical variance can cause significant, unexpected results in the short-term, where your actual winnings and losses don't match your expected equity outcome.
- Variance occurs when there are deviations from expected results.
- For example, you could flip a coin 4 times in a row and have it land on tails 100% of the time.
- This would be considered short-term variance since we expect to hit tails only 50% of the time.

Sample Size and Variance

6 Coin Flip Example



50 Coin Flip Example





Understanding Equity: Poker Example

- We'll use a fairly common scenario of QQ versus AK all-in pre-flop.
- In this situation, QQ is a 55% favorite to win, meaning QQ has 55% equity whereas AK has the remaining 45% equity.
- Let's assume the all-in pot size is \$200 and determine QQ and AK's equity in dollar amounts:
 - **Dollar Amount Equity** = % Equity x Pot Size
 - **QQ Equity** = 0.55 x \$200 = \$110 Equity
 - **AK Equity** = 0.45 x \$200 = \$90 Equity
- In the long run, QQ's 55% equity share of the pot will yield \$110 in this all-in situation, whereas AK's 45% equity will yield only \$90.



Importance of Understanding Equity

- Equity plays a role in every decision we make in poker.
- Before we make a call or raise or fold a hand, we need to know our equity share of the hand.
- All of our decisions revolve around our equity in the hand; i.e., how often and how much we expect to win.
- With simple poker mathematics, we can evaluate our equity, combined with the pot odds and implied odds we're being offered, to determine the optimal long-term play.
- Understanding equity and odds is crucial; otherwise, we're less likely to make the correct, profitable play.
- We'll be walking through this entire process together as we work our way through this book.



Common Pre-Flop Equity Scenarios

Scenario	Example	Equity Favorite
Over Pair vs. Under Pair	AA vs. QQ	AA (81.55%)
Over Cards vs. Pair	AK vs. TT	TT (56.17%)
Dominated Hand	KQ vs. KJ	KQ (73.16%)
Over Cards vs. Under Cards	JT vs. 68	JT (69.69%)

Pre-Flop & Post-Flop Equity

- One very important concept to understand is that equity changes throughout a hand.
- What does that mean? Our pre-flop equity isn't the same as our post-flop equity.
- Pre-flop, we don't know what cards are going to hit the flop, turn and river.
- But as they do, our equity in the hand changes accordingly.

Hand 1	Hand 2	Action
A♣ A♦ (81.55%)	Q♦ Q♥ (19.14%)	Pre-Flop
A♣ A♦ (40.30%)	Q♦ Q♥ (59.70%)	T♥ 9♥ J♥ Flop