CHAPTER 15
THE RIVER

The River Paradox

There are two common mistakes made on the River, and they run counter to each other. Trying too hard to avoid one mistake means making the other mistake. I call it the River Paradox. The two mistakes are:

- Folding the best hand
- Calling too often with other than the best hand.

Folding on the River when you have the best hand is a big mistake because pots are often substantial and it is difficult to make up for the loss after someone steals the pot from you. This mistake does not have to happen often to be costly. On the other hand, calling on the River costs 1 big bet; and opportunities to make this bet occur often. When you do it frequently, the costs add up quickly. So you should not fold the best hand and should not call too often with the worst hand; but trying to avoid one mistake increases the possibility of making the other mistake. If you fold all the time: you never make the mistake of calling with the worst hand, but you occasionally make the mistake of folding the best hand. If you call all the time: you never make the mistake of folding the best hand, but you make the mistake of calling too often with the worst hand. It is difficult to balance your play on the River to avoid both mistakes.

How do you solve the River Paradox? The solution is complex, and involves figuring out other players' tendencies, reading hands well and being prepared for situations before they happen. Each hand requires consideration of its specific details; but all situations can be analyzed generally away from the table. This chapter gives you the tools to solve problems on the River.

On the River, heads-up play is more interesting than hands with multiple players. With three or more players, the pot is usually large enough that players are correct to call with hands that have any chance of winning; so stealing the pot is difficult. On the River there is more strategy after the hand gets down to heads-up play.

Thinking on the River: Heads-Up

There are three variables to think about on the River after a hand gets down to heads-up play. They are discussed below, and shown in table 23.

- Are you the first to act or the last to act? (Shown in the column headings on the table.)
- What is the probability that you have the better hand? You have been thinking about this issue since the first two cards; the River is the culmination of this thought process. (Shown in the row headings in the table.)
- How does your opponent play? Is she passive or aggressive? Which does she do more often, value bet or check? Does she bluff?

Use these variables to come up with the best plan to maximize profits or minimize losses.

A note on the % chance that you have the best hand

Estimating your probability of having the best hand is difficult. Think critically about the development of the hand, and have a good idea of how your opponents play. There are different situations in which you might have the same probability of having the best hand. The permutations are not as static as this table suggests. For example, there are two different ways you can think you have a 50% chance of having the best hand.

One is when your opponent is on a draw, there are two possible draws, and only one draw hits. For instance, with a possible straight draw and a possible flush draw on the board, a card comes that completes a possible

Table 23
Heads-Up River Play

Chance of Having Best Hand	*You are First to Act & Opp is Aggressive*	*You are First to Act & Opp is Passive*	*You are Last to Act Against a Check*	*You are Last to Act Against a Bet*
0%	Check/Fold or Bluff	Check/Fold	Check or Bluff	Fold or Bluff
25%	Check/Call vs Sharp, Bet vs Loose	Check/Call	Check	Call
50%	Check/Call	Bet or Check/Call if opp on a draw	Check	Call
75%	Check/Call or Bet if it looks like a draw succeeded	Bet or Check/Call if opp on a draw	Bet	Raise/Call
100%	Bet/Check-Raise	Bet	Bet	Raise

straight draw but not a flush draw. You do not know if your opponent has a straight or a busted flush, so your estimate is still 50%.

You can also think you have a 50% chance of winning while your opponent thinks she does, when you both have mediocre made hands, such as top pair with a low kicker or middle pair with a good kicker. Act according to the situation instead of the probability. These issues are discussed below in the sections on "50% of having the best hand" and "75% of having the best hand."

0% chance of having the better hand: first to act

If you have no chance of having the better hand, then your decision is whether to bluff or to fold. Situations where you may be able to bluff successfully:

1. If you think your opponent also has a weak hand, a bet may win the pot. Signs that indicate your opponent has a weak hand:

a. A straightforward late-position player checked on the Turn.

b. There is a draw on the board as well as an A. You have been betting all along while your opponent has been calling. This may be a sign he is on a draw and is afraid of the A on the board. If the draw does not come on the River, and you do not have anything either, it may be a good time to bluff.

c. There is a draw on the Flop and your late-position opponent raises you. After a blank card comes on the Turn, you check and then she checks. This indicates she is on a draw and her raise on the Flop was for a free card on the Turn. Even if you have nothing, if another blank card comes on the River you should consider bluffing.

2. A scare card coming on the River may give you an opportunity to bluff. An overcard, especially an A, is a common scare card, as is a third flush card. If it appears to your opponent that you were drawing, one of these cards may help you bluff successfully. For example, if you had AK and were drawing to a pair after the Flop came with two cards to a flush, you should consider betting on the River if the River card is the third flush card. Your opponent may think you were drawing for the flush and make the mistake of folding after you bet on the River. Make this bluff only against an opponent who might fold. Do not bet into calling stations since they do not fold.

0% chance of having the better hand: last to act

An aggressive player may bet on the River when he is first to act because he does not want to miss a bet if he is ahead. Against a player who bets for value with a tiny edge, a raise as a bluff has a greater chance of succeeding. If he bets when he thinks he has a tiny edge, your raise may convince him that his original evaluation was wrong.

Against a passive player, who is less likely to bet for value, a raise works less often, because she is usually in the mode of checking and calling. When she does bet, there is a greater chance she has a legitimate hand.

25% chance of having the better hand: first to act

With a 25% chance of having the better hand, your decision to bet or check depends on the willingness of your opponent to bet or call with a worse hand.

Against a hypothetical straightforward player

Start examining this issue by looking at a hypothetical opponent who always makes the correct decision if you bet. If he has a better hand, he calls. If not, he folds. If you check, he bets as either a value bet or a bluff. So he:

- Always calls a bet if he has the better hand
- Never calls a bet if he has the worse hand
- Always bets if you check.

The chart below shows the results when you are first to act and you bet or check. For example, after you bet with the worse hand, your opponent calls; thus you lose 1 big bet (-1).

Action	*Your Hand Better*	*Your Hand Worse*
Bet	0	-1
Check with intent of calling	+1	-1

The strategy of checking with the intention of calling is better than betting against this opponent. If you bet, you win 0 if you have the better hand and lose a big bet if you have the worse hand. If you check: you win 1 big bet if you have the better hand (because he will bet), and lose 1 big bet if you have the worse hand. If you have the better hand against this hypothetical opponent, you are better off checking with the intention of calling.

The River

If you have the worse hand, it does not matter whether you bet or check, so there is no advantage to betting.

Example

Your hand: A♣5♥
Board: K♣Q♣5♠4♥2♥

You think there is a 25% chance that your opponent has a busted flush draw or straight draw. If she does have a busted draw, then you have the better hand with the pair of 5's. You think there is a 75% chance she has a pair of 6's or better. If you bet: she folds if she has a busted draw, but calls if she has you beaten. If you check, your opponent bets. If she has a busted draw, your check has induced her to bluff. If she has a pair, then she bets for value. Since the pot is normally greater than 3 big bets, you have pot odds to call her with a 25% chance of having the better hand. Against an opponent you know will bluff with a busted draw (especially after you show weakness by checking to her on the River), a check with the intention to call is a better strategy than betting.

Against a passive calling station

Against a passive player who calls with bad hands, the analysis is different but the result is the same: checking is better than betting.

Example

Assume the pot contains 6 big bets and if you bet, your opponent calls. If you bet and have the better hand, you win 7 big bets. If you check, your passive opponent bets only if he is sure he has the better hand. He bets 25% of the time and checks 75% of the time. (If you knew this, then you would fold; but for the purposes of this example, assume you call.) The other 75% of the time he checks, whether or not he has the better hand.

Action	*Computation*	*Result*
Bet	(25% x 7) + (75% x -1)	+1.00
Check	(25% x 6) + (25% x -1) + (50% x 0)	+1.25

The expected value (EV) chart above shows that you should check when you have only a 25% chance of having the better hand and your opponent is passive. Often when he has the better hand he checks because he is too passive to bet; so if you bet with only a 25% chance of having the better hand, you are in effect betting his hand for him.

Take a tangent here and compare this to the scenario of you having a 50% chance of having the better hand. You can see that the choice of checking or betting against the passive player depends on the probability that you have the better hand, and you should not be checking against passive players in all situations.

Action	*Computation*	*Result*
Bet	(50% x 7) + (50% x -1)	+3.00
Check	(50% x 6) + (25% x -1) + (25% x 0)	+2.75

When your probability of having the better hand increases to 50%, your EV is higher against a passive player when you bet than when you check. Against a passive player, the point where the EV of betting and the EV of checking are equal occurs when you have a 37.5% chance of having the better hand. (The pot size is irrelevant. You can put in 100 for the pot size and get the same difference for the EV of betting and checking.) Figuring out the probability that you have the better hand is difficult. It takes skill in reading the other player's hand as well as experience in understanding different situations in Hold'em. But if you can do it well, you can make optimal decisions on the River.

Now go back to a 25% chance of having the better hand.

Against a loose, aggressive player

If your opponent is both loose and aggressive, you are likely to put in a bet on the River regardless of whether you bet or check. Her looseness means she will call your bet, while her aggressiveness means she will bet if you check.

Action	*Computation*	*Result*
You bet and opp calls	(25% x 7) + (75% x -1)	+1.00
You check and opp bets	(25% x 7) + (75% x -1)	+1.00

Some players are looser than they are aggressive and others are more aggressive than they are loose. So when should you bet or check against a loose, aggressive player? Bet if you think the chance that she will bet incorrectly is lower than the chance she will call incorrectly. Check if you think the chance that she will bet incorrectly is higher than the chance she will call incorrectly. In other words, bet against players who are looser than they are aggressive; and check against players who are more aggressive than they are loose.

This chart shows that you should bet against a player who is more loose than aggressive.

Action	*Computation*	*Result*
You bet and opp calls	(25% x 7) + (75% x -1)	+1.00
You check and opp bets		
90% of the time	(15% x 7) + (10% x 6) + (75% x -1)	+0.90

This chart shows that you should check against a player who is more aggressive than loose.

Action	*Computation*	*Result*
You bet and opp calls		
90% of the time	(15% x 7) + (10% x 6) + (75% x -1)	+0.90
You check and opp bets	(25% x 7) + (75% x -1)	+1.00

25% chance of having the better hand: last to act and your opponent checks

In this situation, with a 25% chance of having the better hand, you should check. A player with a better hand will usually call after you bet; but one with a worse hand will probably fold. You seldom gain a bet when you have the better hand, but often lose a bet when you have the worse hand. The only advantageous time to bet in this situation is when you can pull off a successful bluff. For a bluff to work, you must convince an opponent to fold a hand that is stronger than yours. If he folds a hand worse than yours, you gain nothing by betting.

25% chance of having the better hand: last to act and your opponent bets

If your opponent bets, you usually have pot odds to call (3 big bets in the pot will do). Although you lose a bet more often than you win the pot, the EV of calling is greater than the EV of folding when you have a 25% chance of having the better hand. The difficult part is making the correct evaluation that you do in fact have a 25% chance of having the better hand.

50% chance of having the better hand: first to act

Against a passive player who was not on a draw

Against a passive player who was not on a draw, you should bet when you have a 50% chance of having the better hand. She will often call your bets; but if you check, she will bet only with her best hands. Take a look at an EV equation. Your opponent is a passive player who plays straightforwardly. If you bet, she calls. Since you believe you have a 50% chance of winning and she calls, the EV for betting is zero. If you check, your opponent has the option of betting or checking. Like most passive players, she does not bet unless she is confident she has the better hand. Suppose she bets only 20% of the time; but during those times, she has an 80% chance of having the better hand. The other 80% of the time that she checks, she has a 42.5% chance of having the better hand. (On average, these numbers are consistent with your assumption that you have a 50% chance of having the better hand: 20% x 80% + 80% x 42.5% = 50%.) Assume there are 5 big bets in the pot. This is important, because if there were no bets in the pot, then you could fold after she bets since if she bets she is more likely to have you beaten.

Action	*Computation*	*Result*
Bet	(50% x 6) + (50% x -1)	+2.50
Check	(20% x 80% x -1) + (20% x 20% x 6) + (80% x 42.5% x 0) + (80% x 57.5% x 5)	+2.38

The EV of betting is greater than the EV of checking (+2.50 versus +2.38). So when you think you have a 50% chance of having the better hand, you should bet against a passive player who was not drawing to a straight or flush.

Against a passive player who may be on a draw

Against a passive player who may be on a draw, check and call.

Example

Assume there were both straight draws and flush draws on the Turn, and you are not sure what your opponent was drawing to. One of the draws gets there on the River. You still do not know if you have the better hand; but your opponent knows. You may think you have a 50% chance of having the better hand; but he knows with certainty whether he has the better

hand. If he did not catch his draw, you should not bet since he will not call. The best plan is to check and hope that his bet is a bluff.

Action	*Your Hand Better*	*Your Hand Worse*
Bet	0	-1
Check with intention of calling	+1	-1

Checking with the intention of calling is best because the EV is the same as or higher than the EV of betting.

Example

Your hand: A♣A♠
Flop: J♥T♥2♣
Turn: 3♠
River: 9♣

Your opponent raised on the Flop and checked on the Turn, which makes you think she is drawing for a straight or flush. The 9♣ completes a straight draw but not a flush draw. If your opponent has two hearts for a busted flush draw, then she will not call if you bet. But if she was on a straight draw with KQ, then if you bet she will raise you. If you check and she was on a busted flush draw, then she may bluff. You think your chance of having the better hand is close to 50%, but your opponent has more information than you do. She knows whether she has made her draw; so she knows whether she has a 0% or a 100% chance of having the better hand. So instead of betting, check with the intention of calling and hope her bet is a bluff.

In this EV chart, assume the passive opponent was on a draw. You do not know if she made her hand. Assume a 50% chance she made it and a 50% chance she missed. She knows whether she made it. Assume that if she did not make it she bluffs 10% of the time and mucks her hand 90% of the time.

Action	*Computation*	*Result*
Bet	(50% x 6) + (50% x -1)	+2.50
Check	(50% x 10% x 7) + (50% x 90% x 6) + (50% x -1)	+2.55

In this example, you gain little by checking instead of betting: +0.05 big bets. Passive opponents seldom bluff, but may bluff once in a while. The key here is: if you bet, you cannot win any money because your oppo-

nent will fold if she has a losing hand. But if you check: you win either the same amount, or more if your opponent decides to bluff. If she never bluffs, then the EV of betting is the same as the EV of checking, assuming that you call after she bets. But if she never bluffs then you will fold after she bets; so checking is still better than betting.

Against an aggressive player

Against an aggressive player who bluffs after you check (whether or not he was on a draw), you should check and let him bet. This EV chart shows the results against an aggressive opponent who bluffs 40% of the time with the worse hand after you check.

Action	*Computation*	*Result*
Bet	(50% x 6) + (50% x -1)	+2.50
Check	(50% x 40% x 7) + (50% x 60% x 6) + (50% x -1)	+2.70

Against an aggressive opponent, who bets more often than he calls, you should check and call.

Summary

The key to betting or checking when you are first to act and have a 50% chance of having the better hand is knowing your opponents and the type of hands they are playing. You should bet against a passive opponent who is not on a draw. Check with the intention of calling against a passive opponent who was on a draw if you are not sure whether she made it. Also, check with the intention of calling against an aggressive opponent who has a hand with which she is willing to bluff, but with which she might not call a bet.

50% chance of having the better hand: last to act

Before an early-position player acts, you may think you have a 50% chance of having the better hand. The early-position player's action may or may not give you new information with which to adjust your estimate of that chance. An early-position player who is passive will usually check, though in the same place you might bet. That check is unlikely to give you any extra information. If you think there is a 50% chance that you have the better hand: you should lean toward checking because he may fold with his worst hands, but call when he has a better hand. For example, if you bet: he may call 95% of the time (50% of the time with a better hand and 45% of

the time with a worse hand), and fold 5% of the time (when he has the worse hand). A bet has negative value against a passive player.

A sharp, aggressive player's check may give you useful information. It may signify that she is weak (otherwise she would have bet, since aggressive players are afraid to miss a bet); but she could be trying to induce you to bluff. If you are not sure of her intentions, lean toward checking here as well.

If you know your opponent's tendencies, then you can use that information to decide whether to check, bet with the intention of calling a check-raise, or bet with the intention of folding to a check-raise. For example, against a loose, aggressive player who likes to bet: you should consider betting after he checks, as his check may have given you new information that suggests there is a greater chance that you have the better hand.

If your opponent bets, you should call if the bet has not changed your opinion about the probability that you have the better hand. A passive player's bet may signify you have only a 25% or lower chance of having the better hand. In that case, quickly assess this new information and move forward with the correct decision.

75% chance of having the better hand: first to act

Against a passive opponent

If you are heads-up against a passive opponent and you have a 75% chance of having a better hand, the correct strategy is to bet. You cannot count on the passive player to bet if you check; so you should bet and hope she calls. But if you think she was probably on a draw and missed, you should check with the intention of calling. You cannot count on a player who missed a draw to call a bet, no matter how loose a player she is; and you do not want to bet if by chance she caught her draw.

Against an aggressive opponent

If your opponent is aggressive, then you have more options. You can bet or you can check with the intention of calling or raising, depending on how loose the aggressive player is. If you are check-raising, you want him to call with a worse hand than yours. If you think he will bet but not call after you check-raise, then you might as well bet. Instead of taking the chance that he will check with a worse hand, bet to make sure he pays you off.

An aggressive player can turn passive if he thinks you were on a draw and the draw came on the River. You should bet because if you check, he is less likely to bet.

For example, suppose you have top pair with top kicker. The board contains two cards of the same suit and the River is a third card of that suit. If you are planning to call a bet anyway, you should bet yourself; since any hand that you can beat is unlikely to bet after you check, even a hand belonging to an aggressive player. An aggressive player may not bet top pair if he thinks there is a chance you were on a draw and made it on the River. (He will bet if he thinks you are a calling station.) But he may call thinking you are using the scare card to bluff.

Whether or not you have a drawing hand yourself, figure out if there is a possible draw on the board. Not only is it useful to be aware that your opponent may have a draw, but it is also helpful in assessing what your opponent thinks about your hand.

75% chance of having the better hand: last to act

If the action is checked to you, you should bet against any player. If a player has bet, you can consider calling or raising. If you decide to raise, have a backup plan in case you get reraised. A reraise from certain players can only mean they have the nuts; so before you raise, decide if you are willing to fold if you get reraised by one of these players. A sharp player may not call with a worse hand if you raise on the River; so a raise has little value. (You should throw in a bluff now and then against sharp players.)

100% chance of having the better hand: first to act

If you are 100% sure you have the better hand, then you are in a great spot. Against a passive player, you should bet since she will not. Against a aggressive player, you may decide to bet or try a check-raise. The reasons to check-raise against an aggressive player:

1. You are sure she will bet based on the play of the hand

Check-raise to get more money into the pot, though sometimes you should bet and let her raise so you can reraise. This depends on how aggressive this player is and what you think she holds. For example, you may have a full house and think she hit a flush at the same time. In this situation, against an aggressive player, you should bet and give her a chance to raise you.

2. Check-raise for future value

You should successfully check-raise on the River with a bluff once in a while, so that if you try for a check-raise with the nuts, your opponent may remember and think you are bluffing. You still need to be confident she will bet if you check, or the lost bet on the River is not worth the possible future value.

3. Check-raise so she learns to not bet for value against you

Convince her that a check by you in first position does not necessarily mean you are weak. You do not want an aggressive player always to bet after you check. A check-raise makes her hesitate about betting.

100% chance of having the better hand: last to act

This is the easiest scenario. Bet, raise and reraise. Have fun!

Thinking on the River: Multiple-Player Pots

If there are three or more players on the River, you should play in a straightforward way. Bet if you think you have a high chance of having the best hand, or check if you are not that confident. Call if you have a reasonable chance, relative to the pot size, of having the best hand. When you consider bluffing, take into account the possibility that all players will fold, rather than just one player.

When not to raise with the best hand

In multiple-player pots, it is not always best to raise even if you think you have the best hand. You may be able to win more by calling when there are calling stations at the table.

Example: When you have the nuts

There are three players in the hand and you are second to act. You have the nuts. The second player bets. You are sure that both players will fold if you raise; but the third player may call if you call. You do not gain anything by raising; but if you call, the third player may call too.

Example: When you probably have the best hand, but not the nuts

Assume you have a 60% chance of having the best hand, and you are the second player to act in a four-way pot. You think the first player has 40% chance of winning. Both the third player and the fourth player are

calling stations with 0% chance of having the best hand. If you raise, both calling stations will fold. If you call, there is a 50% chance that exactly one of them will call and a 50% chance they will both fold. If the first player bets, you should not raise even though you are a favorite to win the hand.

Action	*Computation*	*Result*
Call	(60% x 50% x 7) + (60% x 50% x 6) + (40% x -1)	+3.50
Raise	(60% x 7) + (40% x -2)	+3.40

The EV of raising (+3.40) is lower than the EV of calling by 0.10 big bets. You should call when you are not confident that you have the best hand, and hope a third player (who has little to no chance of winning) calls also.

Large Pots on the River

When the pot is large, it does not take a high winning percentage for a bet or a raise to be correct. Say you are in a 10-big-bet pot with two other players. You estimate that you have a 15% chance of having the best hand. If you can steal the pot an additional 10% of the time without the best hand, then you increase your winning percentage from 15% to 25%. This chart compares the EV of calling and raising.

Action	*Computation*	*Result*
Call	(15% x 10) + (85% x -1)	+0.65
Raise	(25% x 10) + (75% x -2)	+1.00

Raising is worthwhile in a situation like this, but only if you have correctly estimated the likelihood that all the players will fold. Your raise has to make both players fold, which is more difficult than getting one player to fold. For example, if both of your opponents will fold only 5% of the time when one of them has a better hand, then the chance you will win has only risen from 15% to 20%. The EV of raising against these opponents:

Action	*Computation*	*Result*
Raise	(20% x 10) + (80% x -2)	+0.40

If these opponents both fold 20% of the time (5% of the time incorrectly), then raising is inferior to calling. The EV equations show that

knowing the players and how they play is crucial to your decision process. The equations by themselves do not provide an answer; user input is the key to the equations.

Why is it correct to call on the River with zero EV or slightly negative EV?

If you play against the same opponents all the time, there is value to calling a bet or raise on the River with zero or slightly negative EV. Your calls on the River reduce the chance that other players will bluff you on the River in future hands. Since being bluffed out is the biggest mistake you can make, there is value in giving up a small amount of edge to reduce the frequency of being bluffed; but do not take this concept too far. You should not call when the pot odds offer you 5:1 but you have only a 10% chance of winning.

Example

It is the River and your opponent has bet. You estimate you have a 25% chance of having the better hand. After your opponent's bet, there are 3 big bets in the pot. Calling is a zero EV play. If you played this hand a thousand times, it wouldn't matter whether you always called or always folded.

If you are seen as a player who folds often on the River, other players notice and take advantage of you. Therefore, if it seems close, or if you have only slightly the worst of it, lean toward calling rather than folding to reduce the future aggressiveness of other players against you on the River.

Last to act: using a check on the Turn to induce a bet or call on the River

If you are last to act, there are times when you should check on the Turn with a hand that you think is probably the better hand. If you think your opponent is so weak that he will not call a bet anyway, it may be best to check on the Turn in last position, hoping to induce a bluff from a weaker hand on the River. If it turns out you are behind, you avoid getting check-raised. If you check on the Turn and your opponent bets on the River, you lose 1 bet if you are behind, the same amount you would have lost had you bet on the Turn. If you are ahead, your opponent gets a free card after you check on the Turn, which means an opponent who is behind is seeing the River for free to get a shot at beating you. The lower the probability of a free card hurting you on the River, the better this play is.

Example

You have K♠7♠ on the button and you open-raise pre-Flop. Only the big blind calls your raise.

Your hand: K♠7♠
Flop: K♣8♠3♦

You bet and the big blind calls.

Turn: A♥

With the A on the Turn: if your opponent checks, you should check. It will be tough for him to call another bet unless he has an A or a K. If he has a lower pair, the presence of the A on the Turn means he is likely to fold to a bet by you on the Turn. In this situation: a worse hand will fold, but a better hand will call or check-raise. Your opponent may call with a K and a weak kicker, but your kicker is weak too. He will have a hard time calling with a middle pair of 8's since there are two scary cards on the board. If the A had not shown up on the Turn, he might have hoped you had AQ or something like that and kept calling you. But with the A on the Turn, he cannot use that justification to keep calling. After you check on the Turn: you hope he is convinced that his hand is better, and bets on the River. But if he checks on the River, he is more likely to call a bet by you on the River than he would have been if you had bet on the Turn.