

How to win Professional Baccarat

A game that plays itself, a scoreboard that remembers nothing,
and nine million simulated sessions at the big table.

Winfield

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Chapter 1 — A Game That Plays Itself

Baccarat is the only major casino game in which the bettor makes no decision after the money goes down. Once the wagers are placed, the coup unfolds mechanically: two cards to the player hand, two to the banker hand, and a fixed rulebook — the tableau — dictates every subsequent draw. No bettor choice, no dealer discretion, no skill. The game plays itself, and the people around the table are spectators with receipts ([Wikipedia¹](#)).

The mechanics take two minutes to learn. Cards 2 through 9 count face value, tens and face cards count zero, aces count one, and a hand's value is the units digit of the sum — a 7 and an 8 make 15, which is a 5. The highest hand is 9. If either side's first two cards total 8 or 9, that is a natural and the coup ends immediately ([Wikipedia¹](#)).

When neither side has a natural, the tableau takes over. The player hand draws a third card on totals of 0 through 5 and stands on 6 or 7 — unconditionally, with no reference to what the banker holds. The banker hand is smarter. If the player stood, the banker follows the same simple rule; if the player drew, the banker's decision depends on both its own total and the value of the player's third card. A banker 4 draws against a player third card of 2 through 7; a banker 5 draws against 4 through 7; a banker 6 draws only against 6 or 7 ([Wikipedia¹](#)).

That asymmetry is the entire strategic content of baccarat, and it was decided by a rules committee, not by anyone at the table. The banker hand always acts second, with information about the player's draw, and the tableau encodes something close to the optimal response. This is the structural reason the banker side wins more often than the player side, and it is why the casino charges a tax — the famous 5 percent commission — for the privilege of betting on the smarter hand ([Wikipedia¹](#)).

Three bets sit on the felt: Banker, Player, and Tie, paying even money, even money, and 8 to 1 respectively, with the banker's winnings docked 5 percent ([Wikipedia¹](#)). Around them the modern casino has bolted on a swarm of side bets — pairs, dragons, pandas — which Chapter 6 dissects one by one. A full-size table seats up to 14 players, often skipping the number 13, and every seat comes with a scorecard and pencil so the table can chart outcomes that have no bearing on what happens next ([Wizard of Odds, Baccarat Basics²](#)).

Two older cousins survive in Europe: chemin de fer, where players bank the game themselves and genuinely choose whether to draw, and baccarat banque. Punto banco — the fully mechanical, house-banked version described here — is what every American casino deals, and it is the subject of this book ([Wikipedia¹](#)).

A game with no decisions might seem to leave nothing to write a strategy book about. The opposite is true. Because nothing the bettor does affects the cards, every dollar of edge lives in exactly one place: which bet is placed, how large, and for how many hands. Those three choices are fully analyzable, and this book analyzes them to the last decimal — with an exact

combinatorial engine and roughly nine million simulated sessions standing behind every number that follows.

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Chapter 2 — Three Numbers That Rule the Table

Everything in baccarat flows from three probabilities. In an eight-deck shoe there are 4,998,398,275,503,360 ways to deal the first four to six cards of a coup, and every one of them can be enumerated by computer. Wizard of Odds published the canonical figures: the banker hand wins 45.8597 percent of coups, the player hand wins 44.6247 percent, and 9.5156 percent tie ([Wizard of Odds, Baccarat Basics²](#)).

The engine built for this book repeats that enumeration independently, walking every two-card combination for each side and every third-card branch of the tableau, weighting each path by its exact multiplicity in a 416-card shoe. It returns banker 45.85974 percent, player 44.62466 percent, tie 9.51560 percent — agreement with the published decomposition to seven decimal places. The full engine, with its unit tests, ships in the appendix and in the companion code archive, so any reader can rerun the arithmetic rather than take it on faith.

Turn the probabilities into prices and the table's economics appear. A player bet wins 44.6247 percent, loses 45.8597 percent, and pushes the rest: expected value negative 1.2351 percent of the stake. A banker bet wins 45.8597 percent but collects only 95 cents per dollar: expected value negative 1.0579 percent. The tie at 8 to 1 wins 9.5156 percent of the time: negative 14.3596 percent. Rounded to published convention, the house edges are 1.06, 1.24, and 14.36 percent ([Wizard of Odds, Baccarat Basics²](#); [Wizard of Odds, House Edge table³](#)).

Strip out the ties, since money moves on neither side when the hands match, and the picture sharpens: of resolved coups, banker wins 50.68 percent and player 49.32 percent ([Wizard of Odds, Baccarat FAQ⁴](#)). Baccarat is a coin flip weighted 1.37 percentage points toward the smarter hand, with the casino skimming its rent through the commission on one side and the payout shortfall on the other.

Two practical corollaries follow immediately. First, banker is the best bet on the felt — not by intuition but by 0.18 percentage points of arithmetic, roughly the difference between losing 1.06 and 1.24 cents per dollar per hand. Wizard of Odds' standing answer to every reader who asks for the optimal baccarat play is exactly this: bet banker every hand, or do not play ([Wizard of Odds, Baccarat FAQ⁴](#)). Second, the margins barely move with shoe depth — six decks prices banker at the same 1.06 percent, and even a single-deck game only stretches the gap slightly ([Wizard of Odds, Baccarat Basics²](#)). There is no table selection game to play on deck count.

The standard deviation per unit staked is 0.93 for banker, 0.95 for player, and 2.64 for the tie ([Wizard of Odds, House Edge table³](#)). Those three volatility numbers, compounded across a session, generate every bankroll curve in Chapter 10. For now the summary is one sentence long: baccarat offers one of the smallest house edges in the casino, attached to a game that requires

literally nothing of the person paying it.

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Chapter 3 — The Commission Paradox

The 5 percent commission is the most misunderstood price in the casino. New players recoil from it — a fee on winning feels like a penalty — and gravitate to the commission-free player bet. The arithmetic says they have it exactly backward.

Start with why the commission exists. The tableau's asymmetry hands the banker side a raw win rate of 50.68 percent of decided coups against 49.32 for player ([Wizard of Odds, Baccarat FAQ⁴](#)). Paid at true even money, banker would be a profitable bet for the public, and the game would be broken. The commission is the counterweight: dock winning banker bets 5 percent and the bet's expectation lands at negative 1.0579 percent — still comfortably the best price on the table, but no longer positive ([Wikipedia¹](#)).

The paradox, then: the taxed bet is the cheap one. Per hundred dollars wagered per hand, banker loses \$1.06 in expectation and player loses \$1.24. The campaign behind this book made the comparison concrete by dealing one million 100-hand sessions of each. Flat banker bettors finished down 1.05 units on average and ended ahead 44.8 percent of the time; flat player bettors finished down 1.24 units and ended ahead 42.8 percent. Same table, same cards, same boredom — the commission side simply kept more of its money, exactly as the closed-form arithmetic promised.

The commission also shapes table mechanics. Houses collect it either hand by hand or, more commonly, as a running tally settled when the bettor colors up ([Wikipedia¹](#)). The running tally matters for the field test in Chapter 12: a session that looks even on the scoreboard can owe a meaningful commission balance at the end. Across the simulated protocol — 100 hands of flat banker — the average session pays about 2.3 units of commission on roughly 45.9 winning banker hands. The commission is not a rounding error; it is the house edge, delivered in installments.

One more pricing curiosity belongs in this chapter. Because player wins 49.32 percent of resolved hands, a matchplay coupon — the promotional chip that pays even money if the wager wins — is worth more on baccarat's player bet than almost anywhere else in the casino, edging out even the craps don't pass line at 49.30 percent. Wizard of Odds values a player-bet matchplay at 47.95 percent of face value ([Wizard of Odds, Baccarat FAQ⁴](#)). The lesson generalizes: the player bet is the wrong bet for cash and the right bet for coupons, because coupons care only about win frequency.

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Chapter 4 — No Commission, More Cost

Casinos noticed that players hate the commission, and marketing departments produced a solution: no-commission baccarat, sold under names like Super 6. Winning banker bets are paid full even money — except when the banker wins with a total of six, which pays half ([Wizard of Odds, Commission Free Baccarat](#)⁵; [Wikipedia](#)¹).

That exception sounds small. It is not. The engine enumerates a winning banker six at 5.38637 percent of all coups — better than one hand in nineteen. Paying those hands at 1 to 2 instead of even money costs the bettor half a unit each time, and the exact expectation of the no-commission banker bet computes to negative 1.4581 percent, against 1.0579 percent at the traditional table. Published analyses round the same figure to 1.46 percent ([Wizard of Odds, Live Dealer Baccarat](#)⁶; [Wizard of Vegas forum](#)⁷). The half-pay six is equivalent to raising the commission from 5 percent to about 5.87 percent ([Wikipedia](#)¹). The bet marketed as commission-free charges 38 percent more than the bet with the fee printed on the felt.

This is worth pausing on, because it is the purest specimen in this book's running collection of casino pricing tricks: remove a visible cost, add an invisible one, and let the customer thank the house for the trade. MGM National Harbor — the nearest major room to this book's field-test territory — promotes exactly this variant, No Commission Baccarat with a Dragon Bonus side bet, in its published gaming guide ([MGM National Harbor Gaming Guide, No Commission Baccarat](#)⁸).

One no-commission format genuinely improves the price, and readers should know its name. EZ Baccarat pays both sides true even money and instead pushes player-side losses when the banker wins with a three-card seven. That rule prices the EZ banker bet at 1.02 percent — marginally better than the classic commission game's 1.06 ([Wizard of Odds, EZ Baccarat](#)⁹). The catch arrives through the side door: EZ tables exist substantially to sell the Dragon 7 and Panda 8 side bets, priced at 7.61 and 10.19 percent respectively ([Wizard of Odds, EZ Baccarat](#)⁹). The main bet is the bait; the side bets are the hook. Chapter 6 weighs the whole tackle box.

The rule for the reader is mechanical. Read the felt before sitting down. Commission banker: 1.06. EZ banker with the seven-push: 1.02. Half-pay-on-six banker: 1.46 — walk, or bet player at 1.24 if no better table exists. The names on the sign are marketing; the pay table is the price.

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Chapter 5 — Autopsy of the Tie Bet

The tie box sits in the middle of the layout, pays 8 to 1, and is the worst of the three main bets by an order of magnitude. It deserves a full autopsy, because its anatomy explains most of what is wrong with every flashy bet in the casino.

The tie hits 9.5156 percent of the time. Fair odds against it are about 9.51 to 1; the house pays 8 to 1. The gap prices the bet at negative 14.36 percent — thirteen and a half times the cost of the banker bet on the same felt ([Wizard of Odds, Baccarat Basics²](#)). Some rooms, common in the UK, pay 9 to 1, which collapses the edge to about 4.85 percent — still quadruple the banker price, but a reminder that the same bet's cost can triple or shrink on a one-word change to the pay table ([Wizard of Odds, Baccarat Basics²](#); [Wikipedia¹](#)).

What the percentage conceals, the simulation shows. One million bettors flat-bet the tie for 100 hands each. Their average result: down 14.3 units, with a median of down 19 — the median tie bettor loses nearly a fifth of everything wagered. Only 24.2 percent of sessions ended ahead, and the spread was violent: the luckiest twentieth finished up 35 units or more, the unluckiest twentieth down 55 or worse, a standard deviation of 26.4 units against 9.3 for flat banker. The tie bettor buys triple the volatility and pays a fourteen-fold markup for the privilege.

Why does anyone play it? Because 8 to 1 lands loudly. A tie bettor's wins arrive in fistfuls of chips, roughly once every ten to eleven hands, and human memory files the fistfuls while discounting the drip of losses in between. The scoreboard abets the illusion — ties get their own mark on the bead plate, and after two ties land close together the middle of the layout blooms with chips. Chapter 7 deals with the pattern instinct in full; here it suffices to note that a bet's emotional profile and its price are set by different departments.

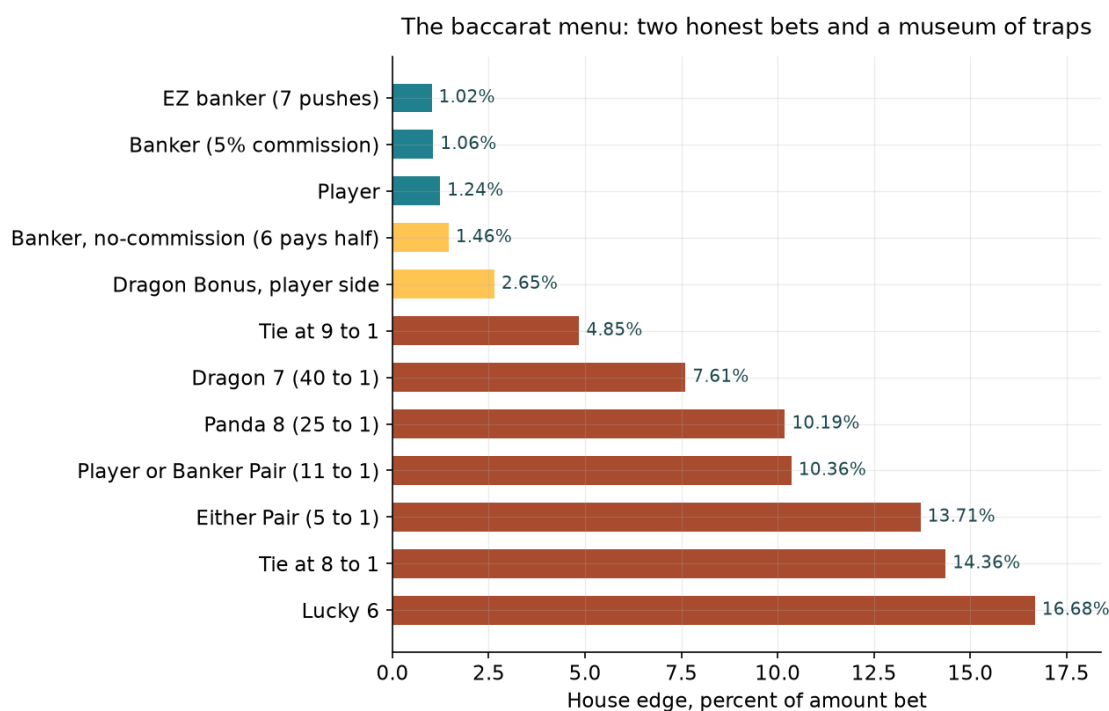
The rarest event in the game makes the point in miniature: a tie at a total of 1-1 occurs with probability 0.004101 — fair odds near 242.84 to 1 ([Wizard of Odds, Baccarat FAQ⁴](#)). Casinos have offered novelty payouts on exotic outcomes like this precisely because rarity sells. The seasoned reading of the tie box is the same as for every jackpot-shaped wager in this series: the louder the payout, the quieter the theft.

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Chapter 6 — The Side-Bet Museum

Baccarat's core menu is austere — three bets, two of them fairly priced — so the modern casino has decorated the felt with side bets. They should be toured the way one tours a museum: with interest, at a respectful distance, touching nothing.



House edges of the baccarat menu

The engine and the published literature agree on the exhibit prices. The Player Pair and Banker Pair bets — first two cards of a side matching in rank, paid 11 to 1 — hit with probability 31 in 415, about 7.47 percent, for an exact edge of 10.36 percent ([Wizard of Odds, Live Dealer Baccarat⁶](#)). Either Pair, paying 5 to 1 on a pair for either side, costs 13.71 percent ([Wizard of Odds, Live Dealer Baccarat⁶](#)). The Perfect Pair — matched in rank and suit — costs 13.03 percent at the common 25 to 1 pay, but drops to 2.99 percent where a 28 to 1 table can be found, a ten-point swing on a single line of the pay card ([Wizard of Odds, Perfect Pairs¹⁰](#)).

The EZ Baccarat companions get their own wing. Dragon 7 — banker wins with a three-card seven, paid 40 to 1 — hits 2.25338 percent of coups by exact enumeration, pricing at negative 7.6113 percent. Panda 8 — player wins with a three-card eight, paid 25 to 1 — hits 3.45432 percent and costs 10.1876 percent. Both figures match the published 7.61 and 10.19 ([Wizard of Odds, EZ Baccarat⁹](#)). The Dragon Bonus, a margin-of-victory bet, is the museum's least offensive piece on the player side at 2.65 percent, and one of its worst on the banker side at 9.37 percent — same name, same felt, three and a half times the price ([Wizard of Odds, Baccarat Side Bets](#)

Appendix¹¹).

The far wall holds the curiosities: Small and Big, wagers on the total card count of the coup, at 5.27 and 4.35 percent (Wizard of Odds, Baccarat Side Bets¹²); natural-hand bets around 5.28 percent that quietly become 14.75 percent when a house trims the pay from 9 to 1 to 3.5 to 1 (Wizard of Odds, Natural Hand Side Bets¹³); and Lucky 6 at 16.68 percent, the most expensive exhibit in the collection (Wizard of Odds, Super Baccarat¹⁴).

Two structural lessons emerge from the catalog. First, no side bet on any baccarat felt costs less than double the banker bet; most cost seven to fifteen times as much. The standing professional advice is to treat them as entertainment spending, priced accordingly (Wizard of Odds, Live Dealer Baccarat⁶). Second, the same bet name can hide wildly different prices — Perfect Pair at 13.03 or 2.99, naturals at 5.28 or 14.75 — so the pay table, never the name, is the only fact that matters (Wizard of Odds, Perfect Pairs¹⁰; Wizard of Odds, Natural Hand Side Bets¹³). A bettor who reads pay tables the way a shopper reads unit prices has extracted everything the side-bet museum has to teach.

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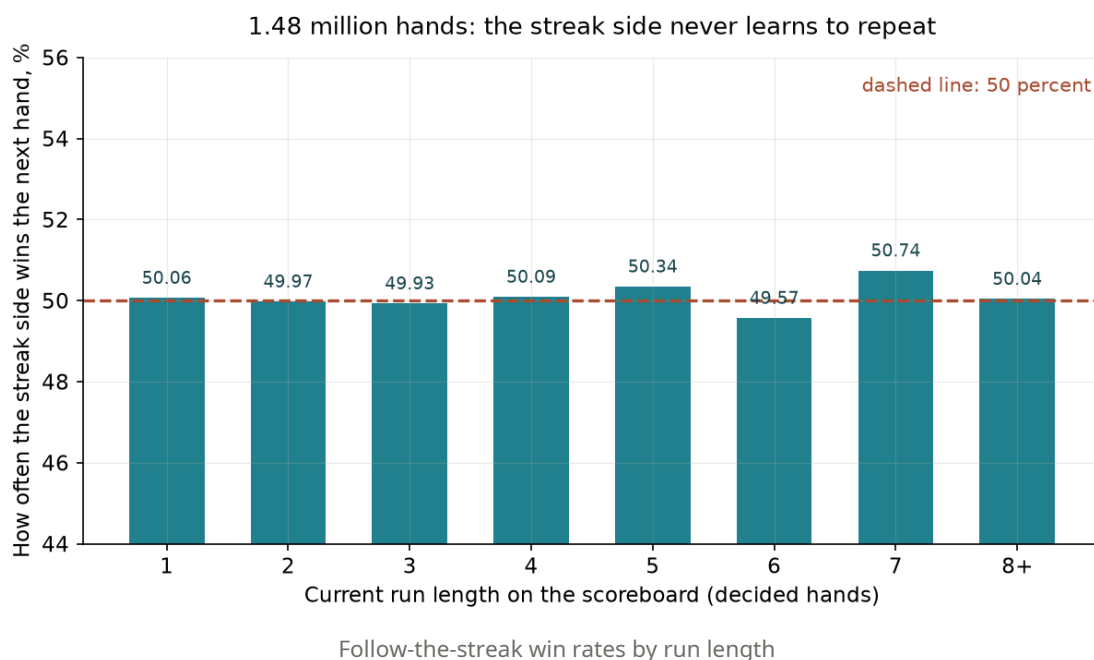
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Chapter 7 — Roads to Nowhere

No game on the casino floor invests more ceremony in its own history than baccarat. Every table runs a battery of scoreboards — the roads — tracking each coup in multiple notations at once. The Bead Plate records every outcome chronologically. The Big Road groups results into columns by streak, starting a new column each time the winning side changes. Above them, three derived roads — Big Eye Boy, Small Road, and Cockroach Pig — are computed algorithmically from the Big Road's shape and read for red signals (the shoe is repeating) versus blue (the shoe is choppy) ([Live Casino Comparer](#), [Baccarat Roadmaps](#)¹⁵).

An entire folk science has grown around reading these boards, and whole tables will surge their bets when the roads turn red. The question this chapter answers with force: does any of it predict anything?

The campaign dealt 20,000 full eight-deck shoes — 1,479,758 consecutive pairs of decided hands — and asked one question of each: given the current run length on the scoreboard, how often does the streaking side win the next decided hand?



The answer is a flat line. After a run of one, the streak side wins the next decided hand 50.06 percent of the time. After a run of three, 49.93. After a run of five, 50.34. After runs of eight or more — the boards on fire, the table piling onto the pattern — 50.04 percent. Every bucket sits within sampling noise of the base rate, because the shoe does not know what it dealt last hand. Streaks are what randomness looks like in the rear-view mirror, a point the practitioner community concedes in its more honest moments ([Wizard of Vegas forum](#), [Differential of 7](#)

baccarat¹⁶).

Nor are long streaks rare enough to mean anything. Run-length tables built from the same combinatorics show a banker run of three or more appears in 99.74 percent of shoes and a run of six or more in 44.20 percent (Wizard of Vegas forum, Baccarat Streaks question¹⁷). Nearly half of all shoes contain the very pattern that convinces a table the shoe has a personality. Wizard of Odds' companion runs analysis confirms that consecutive-win probabilities in baccarat track a fair 50/50 process almost exactly (Wizard of Odds, Baccarat Appendix 4¹⁸), and its verdict on scoreboard reading is unusually blunt: searching for patterns in the roads is as useless as predicting the next roulette color from the last one, with the sole concession that a derived road can describe how choppy a shoe has been — a fact about the past with no bearing on the future (Wizard of Odds, Baccarat Score Boards¹⁹).

The simulation closes the loop financially. One million sessions of follow-the-last betting — always backing the previous decided winner — lost 1.14 units per 100 hands. One million sessions of the contrarian mirror — always betting against the last winner — lost the same 1.14. Both sit exactly where a blend of banker and player bets must sit, between 1.05 and 1.25, and no scoreboard notation changes that arithmetic by a basis point.

The roads are not a map. They are wallpaper printed with the route already traveled — pleasant to look at, useful for pacing a session, and predictive of nothing. The reader who internalizes this chapter is immune to the most seductive ritual in the game.

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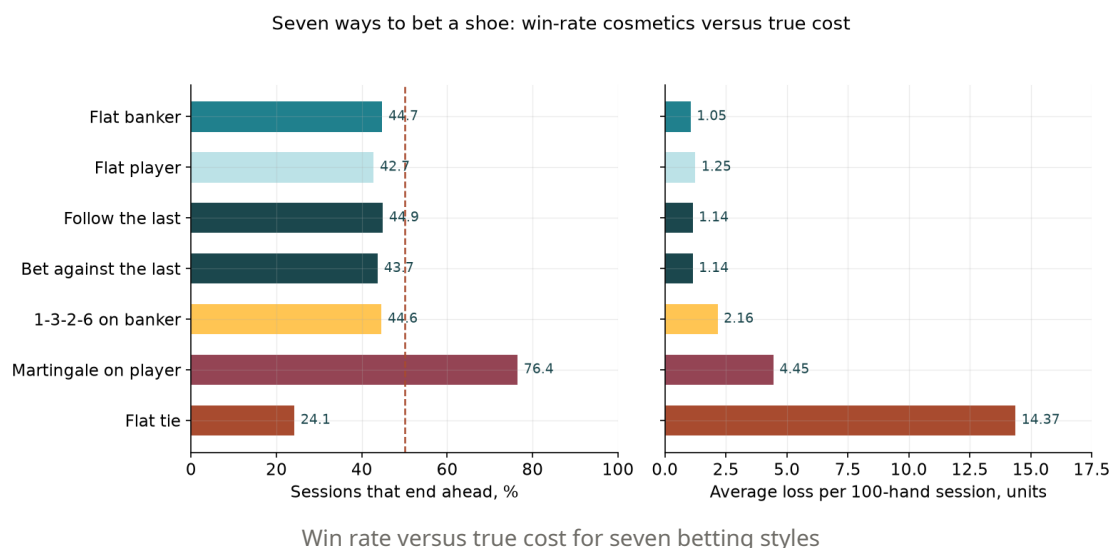
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Chapter 8 — Systems Under the Microscope

Baccarat is the spiritual home of the betting system. The game's even-money rhythm, its scoreboards, and its aura of sophistication attract progression schemes the way porch lights attract moths. The claim under test in this chapter is the oldest one in gambling: that sizing bets by the pattern of prior wins and losses can beat a game whose every hand is priced against the bettor.

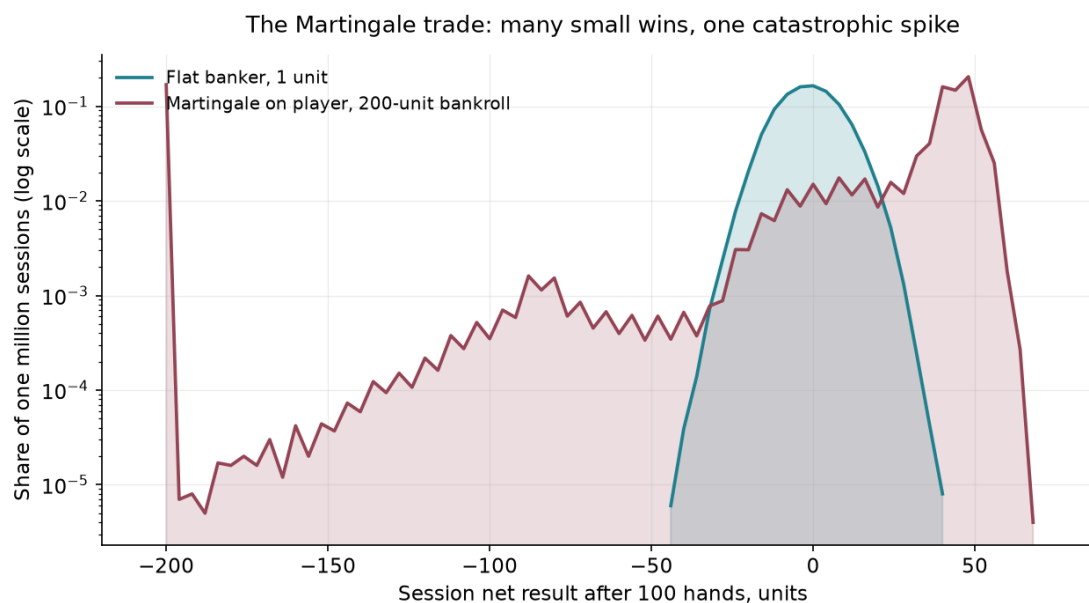
The general verdict has been on record for decades. Wizard of Odds states it without qualification: betting systems cannot convert a subfair game into a profitable one, and varying bet size leaves the ratio of expected loss to money wagered untouched ([Wizard of Odds, The Truth About Betting Systems²⁰](#)). Applied to baccarat's player bet, the popular 1-3-2-6 progression carries an expected loss of 0.050308 units per four-hand cycle — a loss-to-wager ratio of 0.012351, which is the player bet's native 1.24 percent edge wearing a costume ([Wizard of Odds, 1-3-2-6 Betting System²¹](#)).

The campaign put five styles through one million 100-hand sessions each, every bettor starting with a 200-unit bankroll.



Flat banker: down 1.05 units per session on average, ahead 44.8 percent of the time, and no bettor in a million sessions came close to losing the bankroll. Flat player: down 1.25, ahead 42.8 percent. The 1-3-2-6 on banker: down 2.16 — the progression pushes more money through the table per session, so the same percentage edge extracts more units — with the fifth-percentile session roughly doubling flat banker's damage, 37 units against 16. Follow-the-last and its contrarian twin: down 1.14 each, as Chapter 7 predicted.

Then the Martingale, doubling after every loss on the player bet. Its seduction is visible in one number: 76.4 percent of sessions ended ahead, with a median result of plus 41 units. Three sessions in four, the doubler walks out a winner and tells the table about it. The full distribution tells the rest.



In 16.9 percent of sessions the doubling ladder outran the 200-unit bankroll and the bettor lost essentially everything — the spike at the far left of the chart, 200 units gone in a session meant to grind out 40. Average result across all million sessions: down 4.45 units, four times the cost of flat banker. The Martingale does not reduce the house edge; it rearranges the losses into a shape that flatters the memory of survivors. Wizard of Odds' own million-session Martingale test found the same convergence, with the bettor's loss-to-wager ratio settling onto the underlying house edge and roughly a fifth of sessions ending in bankroll ruin ([Wizard of Odds, The Truth About Betting Systems](#)²⁰).

Practitioner forums, having tested every Fibonacci, D'Alembert, and hybrid trigger against simulators, arrive where the arithmetic sits: no progression stays positive in honest testing, and flat betting is the only defensible baseline ([Wizard of Vegas forum, Baccarat can be beaten](#)²²; [Wizard of Vegas forum, best baccarat betting system or strategy](#)²³). Wizard of Odds' FAQ adds the final degrees of freedom: waiting for a streak of four before betting changes nothing, because the cards have no memory, and the best available play remains flat banker — or no bet at all ([Wizard of Odds, Baccarat FAQ](#)⁴).

One honest sentence summarizes a century of system literature. In a game with no decisions, there is nothing for a system to optimize; there is only the choice of which negative number to multiply by how much money.

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Chapter 9 — Why Baccarat Cannot Be Counted

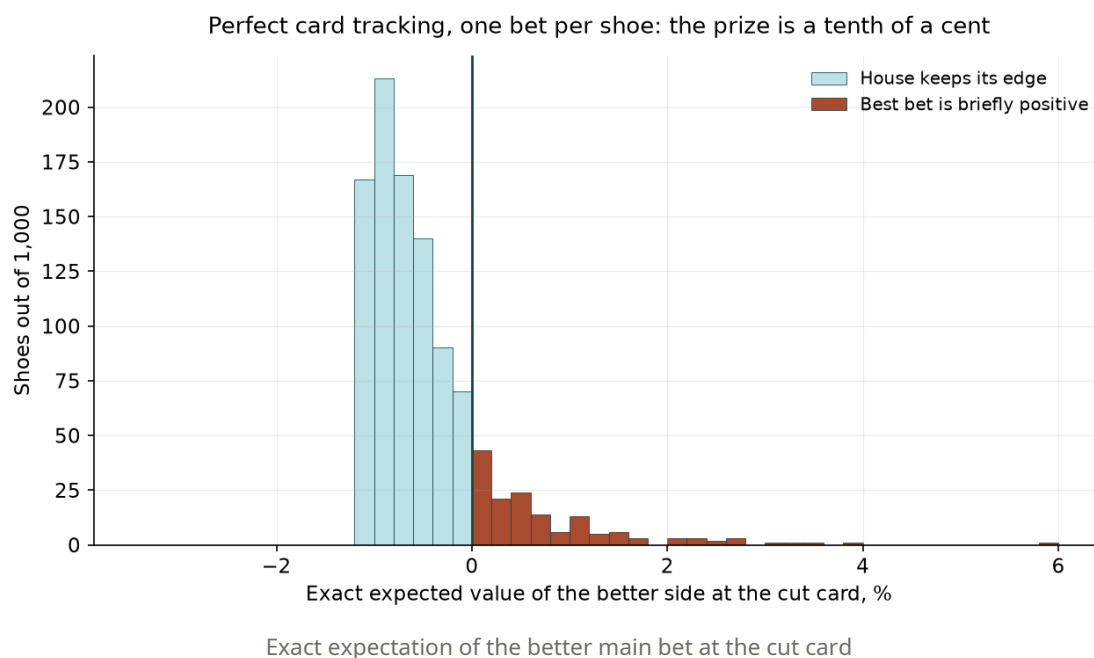
Blackjack was beaten by card counting, and baccarat is dealt from the same kind of multi-deck shoe without mid-shoe reshuffling. Successive hands are therefore not independent — the composition of the remaining shoe genuinely changes as cards leave it ([Edward O. Thorp, *The Mathematics of Gambling*²⁴](#)). Every serious gambler eventually asks the obvious question: why does the blackjack trick not transfer?

Edward Thorp himself — the man who broke blackjack — answered it first. Working with Bill Walden from 1962, he concluded that despite the resemblance between the games, the favorable situations detectable by perfect counting are not sufficient to make baccarat favorable, and that no practical winning strategy exists for the main bets even with a computer playing perfectly ([888 Casino, review of Thorp and Walden's paper²⁵](#); [Baccarat.net, Thorp's Baccarat Card Counting²⁶](#)). The one exploitable target the pair found was a long-extinct 9 to 1 side bet on naturals, which became massively countable — edges approaching 89 percent — only in the last few cards before a shuffle ([888 Casino, review of Thorp and Walden's paper²⁵](#)). Casinos removed the bet.

The structural reason lives in the effect of removal. In blackjack, removing a five from the shoe swings the player's edge meaningfully; tens and aces make blackjacks that pay 3 to 2, so composition maps directly onto money. In baccarat, both hands draw from the same tableau symmetrically and every payout is flat, so removing any single card moves the banker and player probabilities by mere thousandths of a percentage point. Wizard of Odds' effect-of-removal table quantifies the anesthesia: the true-count thresholds at which banker or player would reach zero house edge are 105,791 and 123,508 — numbers so absurd they constitute a proof, in the Wizard's words, that for all practical purposes baccarat is not a countable game ([Wizard of Odds, Baccarat Appendix 2²⁷](#)).

The engine reproduces the anesthesia directly. Remove a single 4 — the banker bet's best friend — from a full eight-deck shoe and the exact banker expectation improves from negative 1.0579 to negative 1.0463 percent. One card, one hundredth of a percentage point. A blackjack counter gets more signal from a single card than a baccarat counter gets from a dozen.

What about the end of the shoe, where composition runs to extremes? The campaign dealt 1,000 shoes to the cut card — 14 cards from the end, the deepest penetration a standard game allows — and computed the exact expectation of the next hand from the actual remaining cards.



In 15.1 percent of shoes, one of the two main bets was genuinely positive at the cut card — the counting dream, mathematically real. Then the sizes: the average edge in those moments was 0.78 percent, available for one hand per shoe, and detectable only by tracking the exact count of all ten card values, a feat beyond any human. The expected profit from perfect play — bet one unit at the cut card whenever either side is positive, sit out otherwise — is 0.00119 units per shoe. Playing flat banker through the same shoe costs 0.857 units. The perfect computer earns back one seven-hundredth of what sitting at the table costs; a bettor at \$100 units would gross about twelve cents per shoe. Peter Griffin ran the equivalent calculation for Atlantic City's liberal shuffle point and priced perfect counting at about 70 cents per hour on \$1,000 bets ([Baccarat.net](#), [Thorp's Baccarat Card Counting](#)²⁶; [Wizard of Odds, Baccarat Appendix 2](#)²⁷).

A simplified plus-minus count that switches between banker and player by running count can shave the blended edge by roughly 0.05 percentage points across all hands — real, and worthless, improvement that still leaves every wager firmly negative ([Wizard of Odds, Card Counting in Baccarat](#)²⁸).

Baccarat, in other words, sits in the worst possible spot for an advantage player: dependent enough between hands to tempt the mathematically literate, and flat enough in its payouts to make the dependence worthless. Blackjack pays composition; baccarat launders it. The professional conclusion is Thorp's, unchanged in sixty years — and it frees the reader to stop watching the discards and start engineering the only variables that matter, which is the business of the next chapter.

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Chapter 10 — Session Engineering

Everything to this point reduces to a bleak-sounding inventory: one best bet, no useful information, no system worth running. Professional play begins exactly there. If the edge cannot be changed, the professional controls what remains — price, exposure, volatility, and stopping rules — and treats the session as an engineered product rather than an adventure.

Price is settled: banker, at a commission table, 1.06 percent, or EZ banker at 1.02 where offered. Exposure is the product of pace and duration, and pace is the quietest killer in the game. A crowded big table where players squeeze cards deals 40 to 70 hands per hour; heads-up mini-baccarat against a fast dealer can exceed 120 and approach 200 ([Wizard of Vegas forum, Hands per hour in heads up baccarat](#)²⁹). The per-hand edge is identical at both tables, so the mini table simply bills the same tax three times as often ([Effortless Math, Mini Baccarat Is Faster](#)³⁰). Expected loss per hour is bet size times edge times hands per hour: \$10 flat banker costs about \$4.50 per hour at 42 hands and \$13 at 120. The cheapest upgrade in baccarat is a slower table, and the second cheapest is standing up for a while — sitting out hands is the only bet on the felt with a zero percent edge ([Wizard of Odds, Baccarat FAQ](#)⁴).

Volatility is the third dial. Flat banker's per-hand standard deviation of 0.93 units compounds to about 9.3 units per 100 hands ([Wizard of Odds, House Edge table](#)³); the campaign's million-session runs put flesh on the figure. Over 50 hands, the flat banker bettor averages down 0.53 units with nine sessions in ten landing between minus 11 and plus 10.5. Over 100 hands: down 1.05, between minus 16 and plus 14.3. Over 200 hands: down 2.10, between minus 24 and plus 20. The window widens roughly with the square root of hands while the center drifts down linearly — the whole mathematics of grinding in two curves. Session length is therefore a purchase: each doubling of hands buys double the expected loss and only 1.4 times the upside spread.

Bankroll sizing follows from the windows. A 40-unit buy-in covers a 100-hand flat-banker session beyond its fifth-percentile outcome twice over; in one million simulated sessions with a 200-unit bankroll, ruin never occurred. The practical standard for the field test — 40 units, one unit flat on banker, 100 hands — is conservative by an order of magnitude, which is precisely the point. The professional never gives variance a chance to make the decision.

Stopping rules deserve honesty rather than mystique. A stop-loss does not change expected value — the house edge applies to every hand ever played, in any order — but it caps the tail and enforces discipline, and discipline is the actual scarce resource at a casino table. The simulated protocol of Chapter 12 adds a 20-unit stop-loss and a 20-unit stop-win to the 100-hand session: 3.4 percent of sessions hit the floor, 2.1 percent hit the ceiling, and the remaining 94.5 percent play to completion. The rules exist not to improve the number but to guarantee the session ends by decision instead of by emotion.

What remains is the oldest professional discipline of all: the expected result of a well-engineered baccarat session is a small, known, prepaid loss — about one unit per hundred hands of flat banker. That number is the price of admission to the most elegant room in the casino. The professional pays it knowingly, extracts the comps, the theater, and the data, and never pays a cent more than the arithmetic requires.

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Chapter 11 — The Velvet Rope

No casino game carries more social architecture than baccarat. From the day Tommy Renzoni imported the game from Havana to the Las Vegas Sands in 1959, American houses have dressed it in velvet — roped-off pits, tuxedoed dealers, higher minimums — and aimed it squarely at the largest wallets in the building ([Sands Hotel and Casino, Wikipedia](#)³¹). The lineage runs deeper: a game family that ruined Beau Brummell at Watier's, put the future Edward VII in a witness box during the 1890 Royal Baccarat Scandal, and evolved from baccarat banque through chemin de fer into the Havana punto banco that conquered the world ([Wikipedia](#)¹).

The modern capital of the game is Macau, where baccarat generates the overwhelming majority of table handle and VIP salons run on a junket credit system with minimums reaching hundreds of thousands of Hong Kong dollars per hand; roughly two-thirds of Macau's casino revenue has historically flowed through VIP baccarat ([Fox News, Macau's casinos thrive on Chinese gamblers' taste for baccarat](#)³²). Macau supplied the game's most theatrical ritual: the squeeze, in which the player with the largest wager slowly bends back the corners of the deciding card while the table holds its breath. Squeezed cards are creased beyond reuse — Macau operators reportedly burn through more than a million decks a month ([Macao News, Everything you need to know about baccarat in Macao](#)³³; [Fox News, Macau's casinos thrive on Chinese gamblers' taste for baccarat](#)³²). Around the squeeze orbit the superstitions — blowing on cards, avoiding seat four, favoring seat eight — and dealers trained to announce totals neutrally, never the words win or lose ([Vegas Aces, Mastering Etiquette with Asian Players](#)³⁴).

None of this theater changes a single probability in Chapter 2, and that is the point of this chapter. The velvet rope is a pricing instrument. The ritual, the salon, and the minimums exist to make a 1.06 percent tax feel like membership.

Maryland, this book's field-test jurisdiction, offers the whole spectrum within an hour's drive. Table games have been legal since the November 2012 referendum, with the first tables opening in March 2013 ([Maryland Lottery and Gaming, Agency Timeline](#)³⁵); baccarat and mini-baccarat are named table games under the state code, regulated by the Maryland Lottery and Gaming Control Commission with operating rules codified in COMAR Title 36 ([American Gaming Association, Maryland Regulatory Fact Sheet](#)³⁶; [Library of Maryland Regulations, Subtitle 05 Table Games](#)³⁷). The state's six casinos produced \$669.97 million in table-game revenue in fiscal 2022 ([Maryland Lottery and Gaming, FY2022 Annual Comprehensive Financial Report](#)³⁸).

MGM National Harbor runs the flagship room: a dedicated baccarat pit among 140 table games, electronic baccarat terminals from \$5 to \$15 minimums, live tables observed from \$50 up to \$200 on weekends, and a high-limit salon — expanded again in early 2026 — where Macau-style play starts near \$100 and individual tables post \$500 minimums ([MGM National Harbor, Table Games](#)³⁹; [US Casino Advantage, MGM National Harbor](#)⁴⁰; [Yogonet, MGM National Harbor expanded high limit gaming area](#)⁴¹). Live! Casino & Hotel in Hanover has dealt mini-baccarat

since table games launched in 2013, with live minimums commonly \$15 to \$25 and cheaper electronic terminals ([Washingtonian, Gambling Around DC: Maryland Live! Casino](#)⁴²; [Bubble-Craps.com, Maryland Live! Casino](#)⁴³). Horseshoe Baltimore keeps a dedicated Oriole Palace Asian gaming room with midi- and mini-baccarat plus Dragon Bonus, stadium-style electronic baccarat from \$10, and live tables from \$25 ([US Casino Advantage, Horseshoe Baltimore](#)⁴⁴; [Play Maryland, Horseshoe Baltimore Casino Overview](#)⁴⁵).

For the low-stakes reader the map reads simply. The velvet rope marks the expensive seats, not the good ones: the same 1.06 percent banker bet is sold at the \$500 salon table and the \$10 electronic terminal, and only one of those prices survives a 40-unit bankroll. The professional buys the arithmetic, not the membership — the electronic terminal or the cheapest live mini table is the correct venue for the field test, and the salon is a museum exhibit best appreciated from outside the rope.

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Chapter 12 — The Field Test

Theory concluded, the series protocol applies: take the model to a live table, at stakes low enough that the tuition is pocket change, and check reality against prediction. The venue candidates are Chapter 11's: an electronic baccarat terminal or low-minimum live mini table at MGM National Harbor, Live, or Horseshoe Baltimore, at \$5 to \$15 per hand.

The protocol is fixed before entering the building. One hundred hands, flat, one unit per hand, banker only, at a standard commission table if available. Bankroll: 40 units. Stop-loss: 20 units down, walk. Stop-win: 20 units up, walk. No side bets, no tie bets, no progression, no reading the roads — every deviation from the script is a recorded protocol violation, and the point of the night is the script.

The log sheet mirrors the engine's outputs: for each hand, the wager side, the outcome (banker, player, tie), the running net, and the running commission owed if the house collects by tally; at session close, hands dealt per hour, the final scoreboard photograph, and any violation notes. Ties are logged but do not count as decided hands.

The engine's predictions for this exact protocol, from one million simulated executions, are stated here in advance so the field result can be scored against them. The session completes all 100 hands 94.5 percent of the time; the stop-loss fires 3.4 percent, the stop-win 2.1 percent. Expected net: minus 1.05 units, median minus 1.25. Nine sessions in ten finish between minus 17 and plus 14 units, and the session ends ahead 44.7 percent of the time. Roughly 45.9 hands per 100 are banker wins, generating about 2.3 units of commission — the auditable line item that separates a commission table's books from a no-commission table's. Any single session landing anywhere inside the nine-in-ten window confirms nothing and refutes nothing; that is the entire lesson of variance, and the reason the log matters more than the result.

The debrief compares three things. First, the net against the predicted distribution — one point inside a wide interval, weighted accordingly. Second, the observed banker/player split and tie count against 45.86, 44.62, and 9.52 percent — with 100 hands the split will be crude, and the crudeness is itself the exhibit. Third, and most valuable: the scoreboard photograph against Chapter 7. Whatever roads the table was reading that night, the record will show streaks, chops, and dragons in roughly the proportions 20,000 simulated shoes produced from pure randomness — patterns in the rear-view mirror, purchased at 1.06 percent per glance.

A note on scale, because the series is honest about it. At \$10 units the expected cost of the entire experiment is about \$10.50, the commission tally near \$23 gross against winnings, and the worst plausible night costs \$200 at the stop-loss. The field test is priced as what it is: a laboratory fee for watching the tightest arithmetic in the casino operate on live cards.

Chapter 13 — Appendix: The Engine and the Tables

Every number in this book traces to one of two sources: the published literature cited inline, or the gamestats engine written for this series. The baccarat module is exact where exactness is possible and simulated where it is not, and this appendix records both halves for reproducibility.

The exact half enumerates the game. From an eight-deck composition — 128 cards of each zero-value rank aggregated, 32 of each other value — the engine walks every ordered pair of two-card hands, applies the tableau's third-card branches, and accumulates outcome probabilities as exact rational fractions, only converting to decimals at the boundary. It reproduces the canonical eight-deck decomposition — banker 45.8597, player 44.6247, tie 9.5156 percent ([Wizard of Odds, Baccarat Basics²](#)) — to seven decimal places, and prices every wager in the book from first principles: banker at negative 1.0579 percent, player at negative 1.2351, tie at negative 14.3596, Dragon 7 at negative 7.6113, Panda 8 at negative 10.1876, the pair bets at negative 10.3614, and the no-commission banker at negative 1.4581. The same enumerator accepts any depleted composition, which is what powers the effect-of-removal table and the cut-card study of Chapter 9.

The simulated half deals cards. A shoe model shuffles 416 cards, places the cut card 14 from the end, and deals coups by the tableau — roughly 81 per shoe — feeding session simulators for flat betting on any side, the Martingale, the 1-3-2-6, and both scoreboard-following styles, plus the streak auditor of Chapter 7 and the drift study of Chapter 9. The campaign behind the book comprises one million sessions per betting style at each of three session lengths, 20,000 audited shoes, and 1,000 exactly-priced cut-card compositions — on the order of nine million sessions and thirty million dealt hands in total.

The test suite pins the engine to the published record before any chapter cites it: twelve assertions cover the big three probabilities, all major bet expectations, the banker-six frequency behind the no-commission catch, and the pair-bet fraction 31/415. The suite passes against the figures in Wizard of Odds' combinatorial tables ([Wizard of Odds, Baccarat Appendix 1⁴⁶](#); [Wizard of Odds, Baccarat Basics²](#)).

For readers arriving from earlier volumes: the blackjack, poker, roulette, and craps modules live in the same repository, share the same simulation conventions, and their campaigns obey the same rule this volume does — every chart is generated by committed code from committed data, and every claim a reader might doubt can be rerun from the command line. The shoe has no memory. The code remembers everything.

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