

## **Rolling Chip Program in North America**

**By Bill Zender (June 2017)**

### **What is a Rolling Chip Program?**

The first thing one needs to understand about a Rolling Chip program is that it's an alternative form of player tracking. This variation is used to determine the theoretical win of the customer to assist in estimating player reinvestment. The rolling Chip method is more accurate than a standard player rating system. The amount of theoretical win is determined the moment the customer buys in for the non-negotiable (rolling) chips. Standard player tracking systems rely on variables such as observed average bet, and estimated time played along with average decisions per hour. These inputs are made by a floor supervisor and can usually be quite subjective in nature. The rolling chip method involves the amount of rolling chips purchased, and the use of a calculated house advantage. It does not involve any additional input from the supervisor or arbitrary numbers programmed into a computer.

The rolling chip method for rating players was first used overseas in the Far East to rate baccarat customers. Most Asian baccarat customers have a tendency to move from table to table, and this characteristic presents casino management with a player rating nightmare. Using the rolling chip system eliminates the need to track the customers play, and also relieves the floor supervisor from laborious player tracking duties.

Note: Rolling chips are also known as "dead" chips, "non-negotiables", and "multi-play" chips. The only difference between rolling chips and standard casino value chips is that the rolling chips can never be cashed out for value chips or currency. The rolling chips can only be exchanged, or "washed", through wagering on the table. When the chips win they are paid with casino value chips. When the chips lose they are taken by the dealer (house). Where single play promotional chips and coupons should only be wagered on even money bets, multiple play (play-till-you-lose) rolling chips can be wagered on any bet regardless the payoff odds.

### **Mathematics of Rolling Chip Program**

Rolling chips need to be restricted to wagering in baccarat. Since there is no player hand decision strategy used in baccarat, the mathematical house advantage on the Player, Banker, and average hand (50/50 Player and Banker), is fixed at 1.24%/1.06%/1.15%. This house advantage is applied to each hand that is wagered, and is used to determine the theoretical win (T-win) under standard player rating conditions. However, determining the T-win, or "cost" when used as promotional chips/coupons, the casino needs to establish a second set on mathematical house advantage numbers that apply to the wagering of the chips/coupons themselves. This calculation dictates the removal of the "tie" result from the possible probabilities. The subsequent calculated house advantage becomes 1.36%/1.17% (Grosjean 2009). If one considers a baccarat customer to wager 50% of the time on the Player and Banker each, the average mathematical advantage of the two wagers is approximately 1.267%. Note: The average mathematical H/A% for the two most common forms of "no commission" baccarat, EZ Baccarat and Punto Banco 6, are 1.20% and 1.49% respectively, and 1.32% and 1.61% when used in conjunction with promotional chips and coupons (percentage of tie hands removed).

### **How Many Times are Each Chip Wagered?**

Rolling chips are also known as “play-till-you-lose” chips since the chips are only taken when wagered on losing decisions. The question is, how many times is the average rolling chip wagered? The mathematics are quite boring, so I will go directly to the answer which is an approximate average of two times. Since the chips are wagered an average of twice, the mathematical house advantage is applied two times to each chip. Based on the “two times” principle, each rolling chip is subject to a mathematical house advantage of  $1.267\% \times 2 = 2.52\%$  (rounded down).

By the way, an interesting theoretical win number that is floating around the casino industry regarding rolling chip programs is 2.85%. I have yet to have someone explain how this number was calculated. A number of Far Eastern casinos use 2.85% as their rolling chip T-win percentage, but no one can supply any information on how this percentage was derived. From my understanding, the Macanese Government has placed a cap on the percentage of rolling chip rebates stating that they did not want the Macau casinos to give away more than 50% of their theoretical win potential. The government limits the maximum rebate percentage to 1.25% which just happens to be approximately half the calculated T-win percentage of 2.52%.

Note: In his book, *Casino Operations Management*, 2<sup>nd</sup> Edition, Jim Kilby uses the standard house advantage of the 5% baccarat game in his calculations of the rolling chip program’s T-win. Since he did not back out the percentages of tie hands, Kilby includes ties in his estimate of how many times the rolling chip is wagered on the average before it is taken. Kilby multiplies the average baccarat house advantage (Player and Banker) of 1.15% by 2.2 times wagered instead of 2 (Kilby 2005). The result? Kilby calculated 2.53% which is approximately the same as the previous example calculated at 2.52%.

### **How does this apply to the customer who makes rolling chip purchases at the table?**

If a rolling chip program customer were to make a \$10,000 rolling chip purchase at the table, he or she would receive the same amount in non-negotiable rolling chips. The moment the rolling chips are purchased, the casino already knows that customer’s theoretical win by multiplying the buy-in by the rolling chip mathematical house advantage, or  $\$10,000 \times 2.52\% = \$252$ . From this point onward, any subsequent rolling chip buy-ins, usually made with casino value chips, are subject to the same process and mathematical calculation as the original buy-in. Following in Table 1 is an example of a rolling chip program buy-in over a period of play at the table. The first buy-in was conducted with cash. After the rolling chips were exhausted, the customer used the casino value chips previously won to buy in for more rolling chips. The customer continued to purchase more rolling chips as he gambled at the baccarat table.

During the course of play on baccarat, the customer’s activity as recorded in Table 1 indicates that a total cash and casino value chip buy in resulted in a calculated theoretical win (T-win) of \$1,409. This amount can be used for player reinvestment such as comps, airfare, cash back, and casino junket representative commissions.

**Table 1 – Total Rolling Chip Buy-in and Calculated T-Winn**

Type	Buy-in Amount
Cash	\$ 10,000
Chips	\$ 9,800
Chips	\$ 10,100
Chips	\$ 9,200
Chips	\$ 8,300
Chips	\$ 8,500
Total buy-in	\$ 55,900
H/A%	2.52%
T-Win	\$ 1,409

**How is Win Calculated?**

Using the previous calculations for establishing a customer’s theoretical win is well and good, but what about the customer’s win/loss at the table? This calculation is fairly simple. Given the previous example, at the end of the customer’s play he ends up cashing out \$8,000 in casino value chips at the cage. Since his total cash buy-in for the play was \$10,000, a cash out of \$8,000 gives the casino a \$2,000 win. The casino could also use the amount of casino value chips which the customer had on the table at the conclusion of his play as the cash out amount. This should only be done if casino management is concerned the customer kept some of the casino value chips for later play. Be careful not to count these chips when cashed out at a later time (lowers estimated win figure).

Note: If a customer is in a rolling chip program, they should not be eligible for a loss rebate. The rebate percentage on the rolling chip buy-ins is a substitute for any money back through a discount rebate of table loss.

**What Percent of the Rolling Chip Buy-in can you Use for Player Reinvestment?**

With many rolling chip programs overseas, the rolling chip program is used to calculate the amount of commissions to be paid to the junket representative, and sometimes, the amount of cash rebate paid to the customer themselves. What percentage of the rolling chip buy-in should your casino use as an incentive for attracting junket representatives or high limit baccarat customers? That percentage depends on a number of variables; however always keep in mind that mathematically your theoretical win is limited to 2.52% of the rolling chip purchase. Anything above that percentage becomes negative revenue (loss) over the long term.

A number of years ago the commission percentage paid to junket reps and marketers in Macau climbed to a high percentage due to the different Macau casinos attempting to attract the better junket reps to their properties. At one time the common percentage of rolling chip purchase commission was in excess of 1.5%. The Macau Government stepped in to regulate this quickly inflating percentage and capped the amount of junket rep/high limit player commission at 1.25%. By limiting the commission percentage to 1.25% of the rolling chip purchase, the government held the casinos to only giving back 50% of the casino’s projected rolling chip program revenue. At the time, rolling chip programs were used by every casino for rating the T-win value of all their high end customers.

Don't think for a second that this percentage hasn't been abused in North America. Several years ago the Rio Suites Casino was giving back 1.75% to their junket reps and high limit customers. This ended when management finally understood the numbers and realized that a large amount of their rolling chip customers were "not profitable" after subtracting the cost of comps, airfare, and other promotional chip incentives. If you give back a rolling chip program in excess of 1.25% as cash reinvestment or junket rep commissions, how can you also provide comp RFB, airfare, promo chips, and loss discounts (Killby 2008)?

### **Questions that need to be asked prior to initiating a Rolling Chip Program**

Why is your casino considering a rolling chip program? Every casino has an existing player rating that will calculate the same T-win (although more complicated) as a rolling chip program. Why start up the additional program. I would imagine that in a majority of cases it's due to the request of a junket rep or outside marketer. Maybe this request is based on a more transparent system for play incentive to attract a greater number of higher limit customers; however I would wager a guess that the motivation for this junket rep request is so the representative is able to drive more money into his pocket. In order to protect your casino's interest, I recommend you consider the following bullet points;

- Know the mathematics for calculating rolling chip theoretical win. Understand that the T-win percentage is approximately 2.52%.
- Don't even consider giving junket rep commissions or cash rebates to high end customers in excess of 1.25%. How can a casino operator justify giving away the "lion's share" of the profits while taking all the gambling risk? Start somewhat conservative; think about a give back limited to 0.75% to 1.00%. Look at any request in excess of 1.00% with a jaundice eye.
- Remember that most customers expect other incentives such as room and F&B comps, airfare rebates, and other promotional incentives. All these costs will be above and beyond the rolling chip program rebate/commission percentage.
- There are fraudulent non-negotiable programs where a junket rep, outside marketer, and even casino marketing managers have manipulated upper management to rebate more than 2.5%. A number of years ago a fraudulent rolling chip program (called a non-negotiable chip program at the time) was used at several of the Las Vegas Strip casinos. The outside marketers were manipulating casino management into accepting a rebate percentage of 10% of rolling chip buy-ins!
- Do not mix customers enlisted into the rolling chip program with your standard table game tracking system. I know of situations where the players have been receiving rolling chip and standard player rating benefits at the same time. This also increases the likelihood that customers will receive twice the normal reinvestment amount, and could render their play non-profitable. Limit the rolling chip program customers to specific high limit baccarat tables only. Do not comingle the two rating programs!
- For game evaluation purposes, prohibit cross play. Specific baccarat games should only cater to rolling chip customers, and not casino value chip customers. You will get a more accurate reading on your rolling chip program if you follow this restriction. Keep rolling chip baccarat games statistics separate from standard baccarat games. Remember, the hold percentage in a rolling chip program is much lower than regularly accepted hold percentages since the non-negotiable rolling chips are played across the tables a limited number of times as compared to standard chips. The rolling chip program will hold somewhere around 2.5% with a common variance low of 2.0% and a high of 3.0% (depending on amount of play and time period of the calculation).

## References

1. Kilby, Jim; Fox, Jim; Lucas, Anthony (2005). *Casino Operations Management, 2<sup>nd</sup> Edition*. John Wiley & Sons, Hoboken.
2. Kilby, Jim; Lucas, Anthony (2008). *Principles of Casino Mathematics*. Okie International, Norman.
3. Grosjean, James (2009). *Beyond Coupons*. White paper on coupons and promotional chips.