# WHY HOLD % FOR TABLE GAMES MAY SOON BE OBSOLETE
*By Joe Centrone 9/17/2021*

Resorts World in Vegas recently opened and they have "smart tables" and rfid chips in their casino checks.This got me to thinking about what the role of hold % will be in this casino and reminded me of some of the discussions I used to have with casino execs about hold.  When I was working for a major casino I often wondered why execs placed so much emphasis on hold percentage.   After all, hold percentage does not pay the bills, win does. I was reminded of a story which clearly shows the fallacy of using hold as a tool to judge the value of a table game.  My VP of table games told me about a recent high roller that came in for several days and deposited  $500,000.  He would play for short periods of time, cashing out, pay off his marker and come back later and repeat.  At the end of his trip he had lost his total 500k and had taken out a total of 5 million in markers.  But my VP's superiors weren't happy.   When the VP asked them why, siting that he had lost his total deposit, they said yes, **but you only held 10%!**  I was also reminded of conversations with with other casino execs who didn't know that table game hold and slot hold are calculated completely differently!  For those of you who may not know, slot hold is actually the amount of money a casino wins divided by the amount of money a player bets.  This number should be very close to whatever the slot machine house edge is set at.  While table hold is the amount of money  players lose divided by how much they bought in for (the drop).  Two completely different things.  Even when I explained this in detail  to one particular exec he still didn't get it and told me I was wrong.  I suggested he ask our VP to which he replied  "I'm not going to ask anyone because I KNOW I'm right!

So why am I bringing this all up now?  Because  The Resorts World technology tracks every bet you make so the casino knows EXACTLY how much action a player gave them and where you made each bet, how much their expected win is and how much the player actually won or lost.  The games can also give ticket in ticket out, like a slot machine, so you can just take your ticket and "buy in" at another game.  So if table games can track players like a slot machine should the casino even care anymore about what the game holds?  After all, casinos could care less what a slot player "buys in" for.   So how would this work on some table games for instance?  If a tracked player gives a casino a total of 100K in action and had an average 2% disadvantage  the expected win is $2,000.  With this info a casino can issue comps to players precisely based on their expected win, just like slots.  So getting back to hold, if you know exactly how much a player is expected to lose and you also know how much he actually lost why would you care about hold?  If the above player for example lost 2K after playing a total of 100k with an average HE of 2% then the casino won EXACTLY what they were supposed to win.  So if this player over the course of his trip bought in for a total of 50K your hold would only be 4%.  In many casinos, execs would be upset about that.  But if you had the stats that these "smart tables" provide and you knew the casino won precisely what they were supposed to, then why would a casino even care what their hold was?  Not only does it become meaningless, but how would you even define drop with this technology?  If a player

buys in originally for $1,000 and uses ticket in ticket out, does the next table he goes to with the ticket consider this a new buy in?  I doubt it because it would be the same as a player taking chips from 1 table to another.  But what if the player cashes in the ticket and later buys in for the same amount of cash that was on the ticket?  Would this be considered a new buy in?  The answer to this question is simple, **IT DOESN'T MATTER BECAUSE HOLD % BECOMES OBSOLITE.**   One thing that wasn't clear with this technology was if it also was tracking the way a player plays in games where skill will effect the HE.  For instance, few BJ players play perfect basic strategy, if the "smart tables" are also tracking the cards and the way a player plays it can give a precise figure on the HE for each individual player based on their deviations from basic strategy .  While I know the technology to do this exists, it is not clear yet whether Resorts Words tables are employing this.  If not then they would have to use the estimated average player HE to figure their expected win.  However, it could also be that they are employing this tech, but don't want players to know about it.

Of course this tech may be even more useful in determining if a casino is actually winning what they are supposed to win overall.  For instance lets suppose for a given month that the total action on table games was $1 billion and that the average HE for all bets was 3%.  The casino should have a table game win of $30 million.  If this number is much lower a casino could investigate the possible reasons with great precision from the all of the data these tables provide.  Including player/dealer cheating, advantage play, dealer errors etc.  They could also easily determine which tables were exceeding the expected variance of the game and investigate those tables, dealers and players.  The software could also precisely figure the variance in the win and tell the casino  how many standard deviations away from the actual win was compared to the theo win.  The possibilities are almost limitless and go beyond the topic of this article.  While this tech would make hold obsolete, it also should point out to all casino execs that hold % may not be as important as you think and other metrics are actually much more meaningful.

I often read news articles comparing monthly casino win which use hold % as the reason that the win was lower or higher and they state that the casino was luckier or unluckier than the comparative month because the hold was higher or lower.  While this *could* be the reason, it is far from the only one.  Let's assume, for example,  the drop on a game type was about the  same for the months being compared, but the win and the hold was lower for the most recent month.  Other reasons for the lower hold could include the average bet to drop ratio was lower, the total action was lower, if games had multiple bets, some of which had a much higher house edge, then you may have gotten less action on them on the lower hold month.  So the reasons for the lower hold and win could be one, all or any combination of the above.

So if hold isn't a reliable predictor of the variance in win between months, what else what it might be good for?  How about helping the casino exec decide what games to keep and which to remove?  Afraid not.  For example suppose you are comparing 2 games over a period of time.  Game 1 holds an average of 25% a month and wins 50K a month, while game 2 only holds 18%, but wins 60K a month.  (I'm

(assuming you back out any extraordinary high wins or losses), almost everyone outside the casino industry would say to keep the higher win game. But some casinos execs may be tempted to keep the higher hold game. Why? Because their superiors may put such an emphasis on hold numbers that the higher hold games will make them look better. So, in this case using hold might actually be detrimental to a casino's bottom line.

There is, however, one area that I've found hold to be useful from my years of experience of being a game inventor. In BJ variation games there may be a huge difference between the house edge (HE) for a perfect strategy player and the average player. So when comparing a standard BJ games to BJ variation games or BJ variation games to each other, hold is a good indicator for determining if the HE is higher or lower than a comparative game. The higher the hold the higher the HE against the average player. Either through more errors on the main game or through a combination of errors and side bets which would increase the aggregate HE on BJ variation games with side bets. So casino execs shouldn't be afraid of BJ games with a very low HE for perfect players as this number is a very poor indicator of what the game will hold. In fact since many BJ variation games have a completely different strategy which few players will even know about, there will be far fewer perfect or near perfect players than in standard BJ. In fact I can tell you from my years of experience as someone who evaluated BJ players for their skill levels, even perfect Basic Strategy players for standard BJ is rare, and that strategy has been known for about over 60 years!