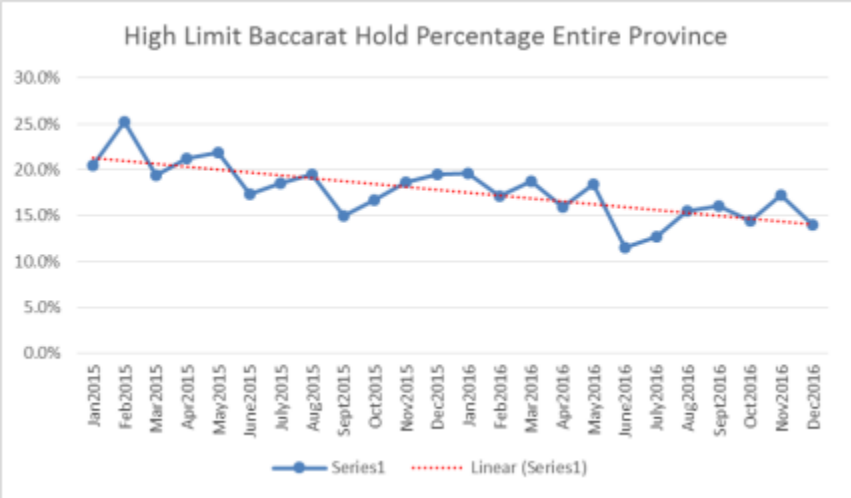
BCLC High Limit Baccarat Evaluation

Assignment

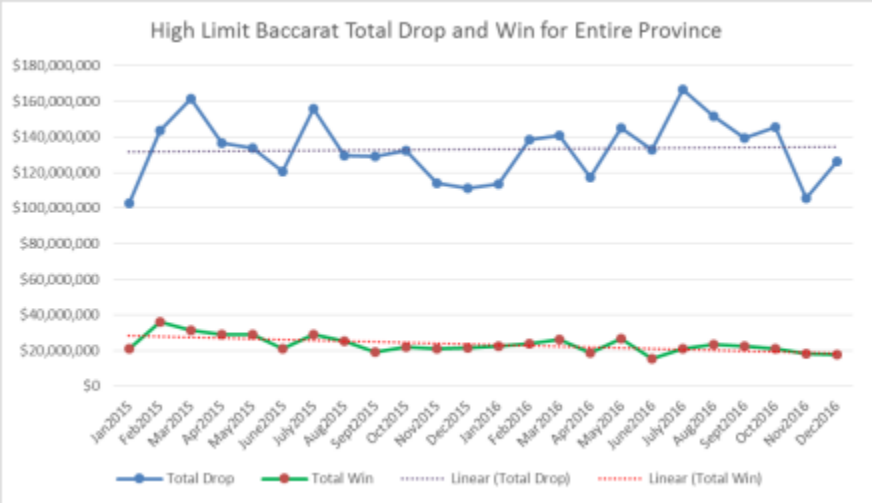
The consultant was request to investigate the decrease in high limit baccarat hold percentage from January 2015 to December 2016 throughout the Province of British Columbia. The following chart will help illustrate the two-year period decrease in the hold percentage. The linear trend line drawn in red shows the decline from just over 20% to just under 15% during this period. It also shows a sizeable decrease starting in the spring of 2016.

Chart 1 - Decline in Monthly Hold Percentage in High Limit Baccarat since January 2015



The two primary elements that determine hold percentage are table monetary buy-ins, or "drop", and the amount of chips retained from that buy-in known as "win". Any increase in drop without a parity increase in win, or a decrease in win without a parity decrease in drop, will lower hold percentage. The ratio of drop and win, hold percentage, is used in the gaming industry as a measuring stick to determine performance of a specific table game or group of table games.

Chart 2 - Decline in Monthly Win and a Leveling in Drop in High Limit Baccarat since January 2015



The monitoring of hold percentage is only effective when used for comparison with the operation's previous or "historical" percentages, and is usually compared on a month-to-month basis short-term. Industry percentage fluctuate depending on a number of factor such as customer gambling characteristics, regional economic levels, and game rules and procedures. In many instances, decreases (and increases) in hold percentage are due to the natural phenomenon of statistical fluctuation. However, sometime hold percentages are subject to a decline due to the reduction of table win which is brought on by theft, cheating, advantage play, and/or inefficient and time wasting game procedures. Because of these adverse possibilities, declines in hold percentage need to be investigated.

Elements that effect table game hold percentage

Casino table game performance has been measured since the beginning of time by following the "hold percentage". However, using this percentage is a very inaccurate method for measuring game performance. Since hold percentage is a comparison ratio using the amount of money (or other monetary instruments) used to purchase casino chips at the table, and the amount of those chips lost at the table by the customer, hold percentage only tells us how much the chips purchased by the customer were gambled and put in jeopardy of being lost. Hold does not truly provide casino management with a clear picture of the table game's performance, or the diligent effort of the pit staff in dealing and protecting the game. Unfortunately, with the present live game accountability systems, it is the best method the industry has to offer.

Hold percentage is affected by two variables; drop, i.e., monetary instruments used to purchase chips, and win, i.e., the amount of chips purchased that are lost at the table. In actuality, when the amount of drop rises and the amount of win stays the same or drops, hold percentage decreases. When the amount of drop stays the same or decreases, and win increases, hold percentage increases. The process is similar to hydraulics; the closer the amount of drop and win come together, hold percentage rises. The further the amount of drop and win move away from each other, hold percentage lowers. There are a number of variables such as game procedures, table game promotions, and external influence that cause drop to increase or decrease, or win to increase or decrease, and greatly affect hold percentage. In most cases it is all but impossible to isolate and identify these internal and external elements. Primarily, the increase and decrease in hold percentage is due to normal, but sometimes undesirable, standard statistical fluctuation of gaming outcomes. These changes are usually short-term, run in hard to measured cycles, and all but vanish when looking at hold percentage over a long-term period such as over a calendar year. Following are side notes regarding factors that have a substantial effect on table game hold percentage.

Side Note: How is High Limit Baccarat average house advantage determined?

Mathematical house advantage is a primary factor in long-term hold percentage levels. House advantage represents the amount of each and every wager that, in theory, is won by the casino. In essence, the casino "nibbles" away at the player's chips wagering on each hand, and eventually wins a portion of those chips based on the number and amount of wagers made. The primary calculation for forecasting future gambling outcomes is done by multiplying the house advantage by the total amount the customer will wager. This is known as theoretical win or "T-win". In addition, the higher the house

advantage, the greater the T-win. The T-win can then be used along with anticipated customer monetary table buy-in (drop) to calculate theoretical hold percentage.

Based on hand probability of outcome, the house advantage for the primary wagers in baccarat, "Player" and "Banker", and the side bet "Tie" are calculated as follows:

Player Wager H/A% 1.24%

Banker Wager H/A% 1.06%

Tie Wager H/A% 14.40%

During the course of this report, the consultant uses the mathematical house advantage (H/A%) percentage of 1.15%. This percentage was arrived at by averaging the two primary wagers H/A%, Player (1.24%) + Banker (1.06%) divided by 2 = 2.30%/2 – 1.15%. The following Table 1 illustrates this calculation.

Table 1 - Average Mathematical House Advantage in Commission style Baccarat (5%)

Wager	H/A%	%Wagered	Weight %
Player	1.24%	**50%**	0.62%
Banker (5%)	1.06%	**50%**	0.53%
Tie	14.40%	0%	0.00%
		100%	
Average H/A%			1.15%

The consultant has opted to omit any wagering on the Tie bet since experience with higher limit baccarat dictates that these customer rarely wager on the Tie or other possible side bets.

Note: If a small percentage of the total baccarat wagering is placed on the Tie or side bets, the average mathematical house advantage will increase, in some instances from 1.2% to 1.7%.

Side Note: What is buy-in "churn" and how does it affect hold percentage?

Churning is a term that is usually related to the financial field, specifically the buying and selling of stock. A broker who is consistently getting his clients to trade stocks, not because they need to trade equity positions, but because the broker wants to earn more commission on trading activity, is regarded as a broker who is "churning" his accounts. As existing positions are sold and new positions are acquired, the broker earns commission income each time the stocks are "churned".

In the gaming industry, "churn" represents the number of times a casino customer makes wagers equal to his buy-in at the table. For instance, if a baccarat player buys in for $1,000 and wagers $100 a hand, he will churn, or play through his $1,000 buy-in, one complete time after ten hands. Once he has completed one churn of his buy-in, the casino can assume they will win (in theory) the equivalent of the mathematical house advantage multiplied by the initial buy-in. In this situation, if the average baccarat mathematical house advantage is 1.15%, the casino can expect a theoretical win of $11.50 per each time the buy-in is churned ($1,000 X 1.15% = $11.50). Based on an expected production of 45 rounds per hour (squeeze style baccarat), the casino can assume this customer's money will be churned 4.5 times during an hour of play. Using these calculations the house can expect to win $51.75, and hold 5.2% of the $1,000 (see Table 2). After 3 hours of play, the baccarat customer has churned his buy-in 13.5 times

to create a theoretical win of $155.25, and a theoretical hold of 15.5%. In essence, the more the player churns his buy-in, the more money the casino can win, and the higher the hold percentage will be driven.

Table 2 – The Effect of Churn on Theoretical Win and Theoretical Hold Percentage

Buy in	$	1,000
Avg Bet	$	100
H/A%		1.15%
Bets per Churn		10
Hands per hour		45
Churns per hour		4.5
T-Win per hour	$	51.75
T-hold per hour		5.2%
Hours played		3.0
Total T-win	$	155.25
Total T-hold		15.5%
Total churn		13.5

Based on the previous table and explanation, if a customer in baccarat churns his buy-in 13 or more time, then the average hold percentage should be around 15%. How does this table compare with the high limit baccarat results in BCLC's entire provincial market?

In order to determine BCLC's high limit baccarat buy-in churn, the consultant needed to determine the amount of total wagers handled on the those high limit tables during the period in question. For instance, in 2014 the high limit baccarat games won approximately $312 million, and in order to win that amount, a certain number of bets need to be "handled", or wagered on the tables. If the consultant were to divide the total "win" amount, by the average game's mathematical house advantage, he would be able to establish the approximate amount of dollars wagered in order to win $312 million. This calculates to an approximate amount handled of $27.0 billion [$312M / 1.15% = $27.0B]. To find the number of times the buy-in, or in this example, the total drop is churned, the calculated handle is divided by the drop, resulting in an average churn of 16.0 times [$27.0B / $1.7B = 16.0] (See Table 3).

Table 3 – High Limit Baccarat Drop, Win, Handle, Hold Percentage, and Churn 2014

BCLC 2014		
HL Baccarat		
Win	$	310,997,865
Hold%		18.40%
Drop	$	1,690,205,787
Est H/A%		1.15%
Est Handle	$	27,043,292,586.9
Churn		16.0

Operating with a churn of 16 times suggests that the high limit baccarat customers are wagering more chips and playing for a longer time than on the average. This is one of the contributing factors why the hold percentage in 2014 was 18.4%, considerably higher than high limit baccarat games on the Las Vegas Strip (14.3% in 2016).

Note: The churn on the Las Vegas Strip in 2016 was calculated by the consultant at 12.6 times the drop. The difference in churn between Provincial BCLC and Las Vegas Strip focuses on the fact that the baccarat customer in Las Vegas has more entertainment options available to him than the equivalent baccarat customer in Vancouver who spends more time at the tables.

Buy-in churn is a reflection of several gambling function elements. Some of these elements are:

- Mathematical house advantage of the game in question. House advantage must consider the wagering habits on main bets (Player and Banker), and any side bets (Tie, Dragon 7, Dragon Bonus, etc.) The consultant uses 1.15% as the average default mathematical advantage.
- The time the average high limit baccarat customer spent gambling at the table. Short periods at the table decrease churn while longer periods increase churn.
- Amount of the buy-in (drop) the customer wishes to place in jeopardy. A customer buying in for a large amount of gaming chips might not have needed to buy-in for that large amount if they bought in instead in smaller increments as needed.
- The pace of the baccarat game. Game speed is relevant since customers have a limited amount of time to gamble. If the player has three hours to gamble and the game speed is only 30 hands per hour (instead of 45-55 hands), the customer's churn will be reduced. Using the same example, quicker game pace will increase churn.
- The amount of the customer's average wager. A customer wagering a larger average wager ratio to his buy-in will churn his buy-in much quicker in relationship to time at the table.

The consultant intends to use "churn" to support his opinion as to why high limit baccarat in provincial BCLC has decreased over the past couple of years.

The consultant's opinions why the high limit baccarat hold percentage has decreased

Following are several areas in the BCLC high limit baccarat market that could negatively influence the hold percentage of the high limit games. Because of the various dynamics that move the drop/win hold percentage in casino table games, all the following areas discussed have some influence in the recent decrease in baccarat hold percentage; some more than others. In addition, it is quite impossible to use the provided metric to determine the true effect of each factor or group of factors on the eventual hold percentage The consultant will use his perception of how each factor affects drop and win, and whether or not that factors effect is substantial or insignificant. Note: The consultant has offered a list of his opinions at the end of each specific area discussed.

Why cheating and advantage play in high limit baccarat was ruled out

From past observations and evaluations of the high limit baccarat salons at several of the Vancouver area casinos indicate that the present procedures utilized in the BCLC market are extremely secure and effective in protecting the games against cheating, advantage play, and theft. The use of pre-shuffled playing cards on Midi (squeeze) games, card control and security of all playing cards, the use of Shuffle Master MD shuffling machines on all baccarat games, Harrigan brush faceplates attached to the window of the dealing shoe, and the use of "Intelligent" dealing shoes on Midi games, have eliminated the use of

almost all common or advanced cheating techniques. Game procedures dictated by BCLC, and strictly implemented and enforced by management at the service provider casinos, prevents a number of possible advantage plays (legal avenues of game attack) from occurring. The consultant can state with extreme confidence that BCLC procedures regarding card control and game protection are some of the best in the world.

Consultant's Opinion

1. Cheating, theft, and advantage play are not the reasons why the hold percentage and win has decreased since January 2015.
2. Casinos operating under the guidance of BCLC have some of the best game protection procedures in the world. Note: This statement does not mean that all procedures are operationally efficient.

Use of Cash Player Vouchers

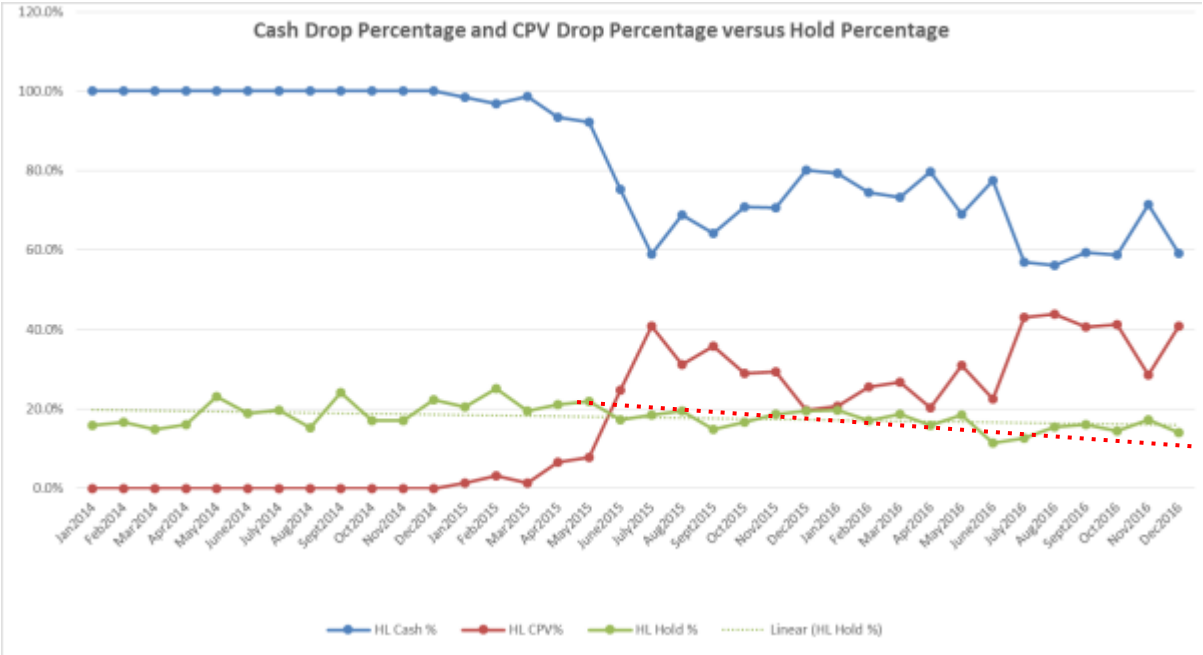
Use of Cash Purchase Vouchers (CPV) issued at the casino cage was created so the customer could buy-in with large amounts of currency at the casino cage without disrupting table play while the dealer counted out stacks of bills on the gaming table. In order to keep the amount of currency buy-in at the cage included in the table drop, the customer is given a cash voucher instead of casino chips. The customer takes this voucher to the gaming table of his or her choice, and uses the voucher to purchase chips. By using the CPV, the customer buys in at the table much quicker, does not hold up play at the table unnecessarily, and the amount taken in as "drop" would not be affected. It also was estimated that using this voucher system would not cause any change to the baccarat game's hold percentage. This procedure started in January 2015, accelerated in June of 2015, and continues to the date of this report.

Since the customer can buy-in for a larger amount of chips at one time, it is possible that the customer is buying in for more chips than he or she would buy-in normally at the table, and that a portion of these chips may not be placed in jeopardy (wagered) by the customer. For example; a customer buys in for $100,000 in currency at the cage and receives a CPV for $100K. He then proceeds to a high limit baccarat table and uses the voucher to purchase $100K in casino chips. The player is now sitting at the table with $100K of casino chips even though he might never need to use that many chips.

The same customer who sits at the table and buys in with currency might not buy-in for the entire $100K. He might buy-in for $10,000 or $20,000 at a time, and only reach the $100K buy-in total if he experiences a poor run of luck. One theory is that the customer using the more convenient method of purchasing a CPV at the cage, is buying in for more money than he might when buying in with currency in smaller increments at the table. The purchase of CPV at the cage, while convenient and quicker than using currency to purchase chips at the table, could be inflating the drop amount while maintaining an unaffected win amount, lowering the high limit baccarat hold percentage.

Following is Chart 3 that examines the hold percentage in comparison with the percentage of drop received from currency and the percentage of drop received from the use of CPV.

Chart 3 - The Effect of Chip Purchased Vouchers on Hold Percentage



When comparing the decrease in hold percentage since June 2015 with the increased percentage of CPV used as drop, the chart indicates that there is a correlation between the two percentages. As CPV use (in percentage) increases, hold percentage decreases as shown by the negative hold percentage trend line in red. By using a closer comparison, it should be noted that several upward spikes in CPV use correspond with downward spikes in the hold percentage, and several downward spikes in CPV use correspond with a return in hold percentages. While this chart doesn't show a 100% correlation between CPV increases and hold percentage decreases, there is enough of a visible correlation to strongly suggest a relationship exists.

Another indicator that the use of substantial CPV effects hold percentage is witnessed through the associated reduction of monetary drop churn. The two examples in Table 4 help support the theory that CPV use reduces the hold percentage because buy-in churn is reduced. If the customers are using CPV to buy-in for more chips than they would if buying in with currency at the table, the buy-ins (drop) will not be churned as many times. The 16 months of high limit baccarat previous to CPV are subject to a buy-in churn of 16.7 times while the buy-in churn after the institution of CPV drops to 14.6 times. It should also be noted that the hold percentage prior to CPV averaged 19.2% for the 16 month period; however the following 20 months, with CPV in full use, the hold percentage averaged 16.8%.

Table 4 - The Use of CPV and its Effect on Buy-in (Drop) Churn and Hold Percentage

Jan 2014 - Apr 2015 (No CPV) 16 Months		**May 2015 - Dec 2016 (Using CPV) 20 Month**	
HL Drop	$ 2,234,666,289	HL Drop	$ 2,649,174,972
HLWin	$ 428,594,579	HLWin	$ 445,791,271
H/A%	1.15%	H/A%	1.15%
Handle	$ 37,269,093,783	Handle	$ 38,764,458,348
Churn	16.7	Churn	14.6
Hold%	19.18%	Hold%	16.83%

Consultant's Opinion Regarding Cash Purchase Vouchers (CPV)

1. The use of CPV increases the amount of drop and chip purchases.
2. Drop from CPV has replaced some of the drop lost when eliminating financial facilitators.
3. A significant amount of these chips will not be placed in jeopardy if the customer is winning or breaking even.
4. The additional drop without the same increase in potential revenue reduces hold percentage.
5. This factor has been substantial in reducing the High Limit Baccarat hold percentage since January 2015.

Elimination of Financial Facilitators

Prior to the fall of 2015, several of the casinos in the BCLC market turned a blind eye to a group of third party individuals known as "financial facilitators". It is a common practice for Asian customers to opt for unregulated third party sources to borrow money when their gambling results turn negative. These financial facilitators (FF) are available for issuing short-term loans of money to these customers, but at what is considered "extortion" rates such as 10% per week on the outstanding amounts. In most societies these facilitators are commonly referred to as "loan sharks". Sometimes these "funds" are provided in the form of cash, but more than likely the facilitator will advance the funds with larger denomination casino chips. Casino chips are easier to transfer and the transactions less noticeable on the highly surveyed casino floor. The use of high denomination chips also allows for circumventing cash transaction reporting laws.

One of the primary indicators of increased (or decreased) volume in these money lending practices is the changing level of outstanding higher limit chips. Generally in the gaming industry, very few high denomination chips remain outstanding. The player possessing the high denomination chips would rather have cash than a non-negotiable casino chip, and will cash out these chips before leaving the casino. When outstanding higher denomination chip levels begin to increase, this is a prime indicator that third party individuals are using the casino's chips for issuing facilitator loans, or for acting as a "chip" broker allowing higher limit players, for a fee, to circumventing cash transaction reporting.

It appears that the BCLC region casinos reduced their tolerance for the acceptance of facilitators starting in the fall of 2015. This change in policy started taking effect in January 2016.

By infusing more chips into the hands of the higher limit baccarat gambler, the participation of the facilitators resulted in a reduction on total monetary instrument drop that artificially inflates the hold percentage.

Table 5 – Total Drop versus Monetary Drop Only

Drop - Monetary only			**Drop - Monetary and Chips**	
Monetary	$ 900,000		Monetary	$ 900,000
Chips (Not Counted)	$ -		Chips (Not Counted)	$ 100,000
Total Drop	$ 900,000		Total Drop	$ 1,000,000
Est. Total Drop Churn	15.0		Est. Total Drop Churn	15.0
Estimated Handle	$ 13,500,000		Estimated Handle	$ 15,000,000
H/A%	1.15%		H/A%	1.15%
Estimated Win	$ 155,250		Estimated Win	$ 172,500
Hold% (Monetary Drop)	17.3%		Hold% (Monetary Drop)	19.2%
Monetary Drop Churn	15.0		Monetary Drop Churn	16.7

Table 5 illustrates that the interjection of chips instead of currency will increase the hold percentage. Since the facilitators' chips are not counted as "drop", the "churn" increases as well since it does not take non-monetary instruments into consideration.

Once the BCLC casino started to discourage the use of financial facilitators, drop levels stayed about the same while win declined due to less available gambling funds. The elimination of facilitators creates a decline in revenue (and possibly a decline in drop), however the practice of unauthorized lending of money is quite illegal, and its elimination will result in a safer gambling environment for the Asian customers.

Consultant's Opinion Regarding the elimination of Financial Facilitators

1. Their elimination has decreased the supply of available funds.
2. Have decreased the amount of high denomination casino chips that are outstanding.
3. The reduction of high denomination chips used in place of buy-in has decreased hold percentage.
4. This factor is partially the reason why hold percentage has declined since January 2015.

The increase in "squeeze" baccarat format

Since 2014, there has been an increase in the introduction of "squeeze" baccarat games in high limit rooms (as well as the main gaming floors). Squeeze game format is known to reduce the number of hand decisions on the game due to the customers spending more time "peeking" the playing cards. Mini Baccarat is formatted so the customers don't peek the cards, and the game is played faster.

When the baccarat game is dealt using the regular Baccarat dealing process each hand moves fairly smoothly, and the game pace is approximately 50-55 hands per hour. Note: A standard eight deck shoe consists of approximately 75 rounds, or hands of play.

Step Process for Dealing Standard Baccarat

1. Customers contemplate betting strategy
2. Customers place bets
3. Dealer draws first four cards to start hand

4. Dealer draws “third card” based on drawing rule
5. Dealer calls hand and proceeds to bet settlement
6. Dealer inputs hand decision on score board and moves to the next hand

A majority of the time spent on any hand is when the customers is contemplating his betting strategy. This process could take up to 30-40 seconds or more to decide. Once the dealer begins to draw cards, the process is quite quick. The entire process takes anywhere from 45 second to a 60 seconds (or more).

The squeeze style method of dealing baccarat is similar, but offers the element of personal involvement which the Asian players so desire. In this version, instead of the dealer being the only person at the table that can handle the playing cards, the customer placing the highest wager on the “Player”, and the customer placing the highest wager on the “Banker”, are presented the first two cards of the respective hands. They are able to squeeze the cards to reveal the hand’s two-card value (in turn, Player peeking first and Banker peeking second). In addition, any third card required (still determined by the dealer based on the third card rule), is also peeked by the respective customers. As one can imagine, the squeezing and peeking process can be quite time consuming as compared to the standard game where the dealer handles the entire process.

Step Process for Dealing “Squeeze” Baccarat

1. Customers contemplate betting strategy
2. Customers place bets
3. Dealer draws first four cards to start hand
4. Customers are allowed to peek or “squeeze” the two cards of the hand
5. Dealer draws “third card” based on drawing rule
6. The customer is allowed to squeeze any third card
7. Dealer calls hand and proceeds to bet settlement
8. Dealer inputs hand decision on score board and moves to the next hand

Based on experience with squeeze baccarat, the consultant estimates that an average squeeze baccarat game achieves approximately 40 to 45 hand decisions per hour, a sizeable reduction in decisions from the standard game (See Table6). In addition to the elongated squeezing process, the cards can become extremely bent and mutilated, and must be replaced after every shoe. Note: Any time cards are touched by the customers in baccarat, whether bent or not, will need to be replaced after every shoe. This procedure eliminates the possibility for the customers to mark the cards during the play.

Table 6 – Effect of Baccarat “Squeeze” Format on Game Speed, Buy-in Churn, and Hold Percentage

Standard Baccarat (Average Speed)		**Squeeze Baccarat (Average Speed)**		**Squeeze Baccarat (Slow Speed)**	
Buy in	$ 1,000	Buy in	$ 1,000	Buy in	$ 1,000
Avg Bet	$ 100	Avg Bet	$ 100	Avg Bet	$ 100
H/A%	1.15%	H/A%	1.15%	H/A%	1.15%
Hands per hour	55	Hands per hour	45	Hands per hour	30
Hours played	3.0	Hours played	3.0	Hours played	3.0
Total T-win	$ 189.75	Total T-win	$ 155.25	Total T-win	$ 103.50
Total T-hold	19.0%	Total T-hold	15.5%	Total T-hold	10.4%
Total churn	16.5	Total churn	13.5	Total churn	9.0

The squeeze style baccarat games are the favorite of higher limit baccarat customers, primarily Asian, and are a necessary requirement in order for the casino to properly market the games. Elimination of squeeze style baccarat games is not an option, however limiting this style of game to higher limit baccarat tables is a strong consideration.

Consultant's Opinion Regarding the increased use of "Squeeze" High Limit Baccarat Games

1. Squeeze type games slow the number of decisions dealt per hour from approximately 55 hand decisions to approximately 40 (or less) hand decisions.
2. Squeeze type games are necessary in order to accommodate the high limit baccarat customer's game preference demand.
3. The increased number of "squeeze' Games is a significant factor in the reduction of Hold Percentage.
4. Management would lose revenue by reducing or eliminating squeeze type high limit baccarat games. Note: Management needs to consider offering squeeze games to higher limit customers only.

Side Note: Game Speed in Hours versus Game Speed in Shoes

The consultant uses both time and the number of shoes played in order to calculate baccarat game production. While "time" is a finite number, the number of shoes, and decisions per shoe can vary greatly. The traditional baccarat customer tends to view gaming "time" at the table as the number of shoes he or she plays through during a session. However, it is the amount of time he or she has in which to gamble that is the primary factor dictating their presence at the table. If the game pace, partially controlled by both the house and the customer, dictates that a 75 hand decision shoe (standard) takes 90 minutes to complete, the customers might stay and gamble through four baccarat shoes. Although, if the game pace dictates that it takes 120 minutes to complete the same shoe, the customers may only gamble through three baccarat shoes. Ultimately, "time" is the principal factor in the number of gambling decisions experienced by the baccarat customer.

Increase offering of "free hands"

"Free hands", or hands dealt where no one is wagering, is a "courtesy" procedures usually afforded to higher limit customers. Free hands allow the customers to look for win-loss patterns in the game. Many casinos will deal 3 to 5 free hands to start the game as a courtesy. Free hands are also known as "dummy" hands.

Free hands do not provide the baccarat customers with any game related information that would allow them to identify a change in the game's mathematical advantage. The Asian customers believe that they can spot sequences of repetition in the winning Player-Banker patterns providing them with a "perceived" advantage.

The dealing of free hands takes less time than the dealing of a standard hand in baccarat because it is done without the placing of bets and the bet settlement phase. In squeeze baccarat, free hands are

much quicker since the customers do not squeeze the cards. The process for dealing a free hand is as follows.

Step Process for Dealing "Free Hands" in Baccarat (squeeze or standard game)

1. Customers contemplate betting strategy
2. Customers asks for free hand to be dealt (No bets placed)
3. Dealer draws first four cards to start hand
4. Dealer draws "third card" based on drawing rule
5. Dealer calls hand (No hand settlement)
6. Dealer inputs hand decision on score board and moves to the next hand

Limited drawing of free hands has almost no effect on the game. However, when an unlimited number of free hands is allowed, the game is subject to a substantial decline in hand decisions, and subsequently, subject to a reduction in revenue potential. For instance, one casino indicates that high limit customers can ask for as many free hands as they wish at their property, usually 10 to 40 free hands per shoe. Since a standard baccarat shoe using a standard shuffle point placement will experience an average of 75 hand decisions per shoe, drawing an average of 25 free hands eliminates one third of possible hand decisions. Table 6 illustrates the decrease in hand decisions, theoretical win and theoretical hold percentage as free hands increase. Please note that in the "Unlimited Free Hands" example, the number of shoes dealt has been increased to five shoes from four in order to compensate for the time gained when dealing a high volume of free hands.

Table 7 - The Effect of Free Hands on Theoretical Win and Theoretical Hold Percentage

No Free Hands		**Courtesy Free Hands**		**Unlimited Free Hands**	
Buy-in	$ 10,000	Buy-in	$ 10,000	Buy-in	$ 10,000
Average Bet	$ 500	Average Bet	$ 500	Average Bet	$ 500
House Advantage	1.15%	House Advantage	1.15%	House Advantage	1.15%
Decsions per Shoe	75	Decsions per Shoe	75	Decsions per Shoe	75
Free Hands per Shoe	0	Free Hands per Shoe	3	Free Hands per Shoe	25
Total Decisions per Shoe	75	Total Decisions per Shoe	72	Total Decisions per Shoe	50
Shoes Played	4	Shoes Played	4	Shoes Played	**5**
Theoretical Win	$ 1,725	Theoretical Win	$ 1,656	Theoretical Win	$ 1,438
Theoretical Hold%	17.3%	Theoretical Hold%	16.6%	Theoretical Hold%	14.4%

Consultant's Opinion Regarding the use of "Free Hands" in High Limit Baccarat Games

1. The dealing of free hands should be used strictly as a courtesy to high limit baccarat customers.
2. Unlimited free hands greatly decrease the number of wagers per shoe which decreases revenue potential.
3. The use of excessive free hands has been a significate factor in reducing win and hold percentage since January 2015.
4. Free hands should not be eliminated, but there should be a limit of free hands offered per shoe.

Note: The consultant suggests that BCLC establish limits that are province wide. For instance, establish a set number of free hands to start the shoe, and establish a maximum number of free hands during the shoe.

Increased use of "Free Play" Promotional Coupons

A number of the BCLC service providers' casinos offer free play coupons to their customers as a marketing tool to promote the play of table games at their casinos. Promotional coupons come with an inherent cost besides the cost of printing and distribution. A majority of the cost occurs when the coupons are played on the table games, and the cost is felt through the loss of gaming chips from the table chip tray. For instance; the use of a "free play" coupon in baccarat has an average cost of 48.5% of coupon face value (Player wager is 49.3%; Banker wager is 48.2%). Note: Free Play coupons should never be wagered on the Tie bet (cost of 76.1%), or any of the available side bets due to the serious increase in cost.

The effect of the free play coupons on the hold percentage is based on the amount of free play coupons issued. The coupons are counted as 50% of face value when considering drop, and are subject to 48.5% of face value in loss to the table game. These two factors work against the hold percentage since on one hand their use increases drop, and on the other hand decreases win. The following Table 8 illustrates the effect of free play coupons at BCLC casinos if 1/10% of the total drop consisted of free play coupons.

Table 8 - The Cost and Effect of Free Play Coupons based on 1/10% of the Drop

1	Example	Drop	$	1,000,000
	No Free Play Cost	Win	$	180,000
		Hold%		18.0%
2	Free Play Effect	Free Play	$	1,000
	Example of 1/10% of Drop	Cost		0.485
	(Free Play Baccarat Avg Cost)	T-Win	$	(485)
3	Example Plus	Drop	$	1,000,000
	Negative Free Play Effect	Adjt Win	$	179,515
		Hold%		18.0%
4	Example Plus	Drop	$	1,000,500
	Increase Drop and	Adjt Win	$	179,515
	Negative Free Play Effect	Hold%		17.9%
	(50% of Free Play Face Value)			

Fortunately, the use of promotional coupons in high limit baccarat has been limited, and the effect their use has on drop and win is minimum at best. Free Play Coupons used Province wide in high limit baccarat has totaled;

2014 - $150,365

2015 - $344,195

2016 - $2,177,495

The use of Free Play coupons is equal to or less than less than 1/10% of total drop (in 2016 it represented approximately 1/10%), and does not represent a significate difference in an increase in drop or a decrease in win, and will not influence the hold percentage.

Consultant's Opinion Regarding the use of Free Play Coupons in High Limit Baccarat Games

1. As of 2016, the use and distribution of Free Play Coupons is minimal, and does not have an influence on the hold percentage.

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