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Estimating the effects of casino marketing activities on slot business volume: A model for leisure services businesses

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ESTIMATING THE EFFECTS OF CASINO MARKETING ACTIVITIES ON SLOT BUSINESS VOLUME: A MODEL FOR LEISURE SERVICES BUSINESSES

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ABSTRACT

Estimating The Effects Of Casino Marketing Activities On Slot Business Volume: A Model For Leisure Services Businesses

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This study researched the effect of marketing promotions on gaming volume (i.e., coin-in). Specifically, this study attempted (1) to gain an understanding of the relationship between specific marketing promotions (slot tournaments, special events, product prize drawings, and no marketing promotions) and gaming volume; and (2) to estimate the magnitude of incremental revenue for each type of promotion. A conceptual model was proposed to examine the effect of the different types of marketing promotions on gaming volume, including two other variables (holidays and day-of-the-week) previously found to influence gaming volume.

Secondary data were collected from a Las Vegas Strip property for this exploratory study which employed a multiple regression model. The no marketing promotions variable had a significant negative effect on coin-in. Holidays and day-of-the-week continued to be significant variables for increasing gaming volumes. The

results suggest that it may be a combination of the day of the week, holidays, and marketing promotions that significantly increase gaming volumes.

Promotions should produce a strong spillover effect on slot machine coin-in, producing profits and not just increased revenue. Many casino promotions are not profitable and instead considered loss leaders. With the findings of the current work, casino operators could further evaluate whether their marketing promotions produce sufficient returns on investment. Additionally, this study adds valuable empirical results to the limited literature base associated with the impact of marketing promotions on gaming volume.

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CHAPTER 1

INTRODUCTION

Purpose

Are casinos receiving the incremental slot machine coin-in play necessary to recover the millions of dollars spent annually in marketing promotional costs? This study was designed to answer this difficult question by studying the impact of a Las Vegas strip casino's promotions on slot coin-in volumes over a seven month period. The research focus was to identify two things; which marketing programs increased slot coin-in revenues and the magnitude of the incremental revenue for casino profits.

In a report by the American Gaming Association (AGA) (2005) US casinos provided more than $12.6 billion in revenues. Kilby, Fox, and Lucas (2005) conservatively estimated the profit derived from the slot departments as 60% to 70% of overall casino revenues. While the revenue contribution from slot machines is impressive, the profit contribution is much more noteworthy, as the profit margin of a slot department is often four times greater than that of the table games department. Because of a casino's reliance on slot revenues, it is crucial for these properties to cultivate and maintain robust slot operations. The data analyzed in this work are proprietary, so this study provides rare insight into the daily operations of an actual Las Vegas strip hotel casino.

Practical Significance

In terms of practical significance, this research analyzed a Las Vegas Strip resort's promotional tactics for increasing slot revenue, including slot tournaments, player special events, and product prize drawings on the casino's coin-in volume. This study also investigated the effects of days with no marketing promotions. Because of the considerable number of gamblers who patronize slot machines and the millions of dollars spent on slot promotions, this exploratory study was designed to identify which casino promotions had a significant effect on the amount of money wagered in the slot machines of a Las Vegas strip resort casino. For casinos, the time and expense required to obtain a player's bankroll is great. Therefore, some executives would prefer to win a slot player's bankroll before the player decides to leave and select another casino elsewhere. Ultimately, any information related to improving the performance of slot operation revenues and profits would be of substantial value to casino executives.

Academic Significance

The study's regression model was created to analyze the effects of variables hypothesized to influence slot machine coin-in. Although prior literature has addressed aspects of the variables used in this model, the individual effects of different types of marketing promotions for slot coin-in (slot tournaments, special events, and product prize drawings) have not been determined. The results produced by the model were examined to determine the significance of each variable's effect as well as the overall explanatory power of the model. This empirical study will be added to a vital, yet under-researched area of casino operations by providing results related to the impact of casino promotions

on slot machine business volume. This study will help determine the effectiveness of performance-potential modeling in slot operation marketing. Both the methodology used in this study and the results of the study will help the mangers of leisure service businesses evaluate the effectiveness of their marketing promotions.

Delimitation

There was no attempt was made to estimate the marketing promotional effects to the table games department. The only volume captured at this Las Vegas strip casino property was total drop. Because this statistic includes credit play, it is problematic for correlation-based estimation techniques (Lucas & Santos, 2003). It is also worth noting that drop is a gross volume metric. It does not show the amount of money wagered by players, it simply represents their buy-in. Since the casino is not guaranteed a chance to win the buy-in, only what is wagered, this metric is flawed. Because the casino studied was not using automatic table tracking, the amount wagered by players at the tables was unknown.

CHAPTER 2

LITERATURE REVIEW

Introduction

This chapter provides a review of the relevant literature in an attempt to better understand how marketing promotions are used to increase coin-in for slot machines in a casino environment. The literature review is divided into four sections. The first of which describes the evolution and importance of slot machines to the gaming industry and casino profitability. The second section reviews the literature on marketing promotions used for increasing slot business volumes in the gaming industry. The third section reviews empirical studies in the retail and leisure service industries on deal-prone customers, to further understand the short- and long-term effects of price discounting. Finally, the proposed model is illustrated along with the research hypothesis tested in this study.

The Role of Slot Machines

Importance of Gaming in Society

Research shows that human beings have enjoyed gambling throughout recorded history. (Roberts, Arth, & Bush, 1959; Schwartz, 2006). Ancient Mesopotamians were throwing colored stones and sheep hip bones for profit and guidance centuries before numbers, dice, or cards were invented (Schwartz, 2006). Roberts et al. (1959) studied the distribution of games in 50 societies to advance the anthological theory of games. Their

study found that games occur so widely in society throughout the centuries that they concluded that games meet general human needs, even though they do not directly satisfy the core biological survival needs. Their study defined a game as a recreational activity composed of five features; (1) organized play, (2) competition, (3) two or more sides, (4) criteria for determining the winner, and (5) agreed upon rules.

In the forty-thousand years that humans have thrown sticks, drawn lots, rolled dice, shuffled cards, and pulled slot handles, ample evidence of our gambling passion in the historical record has been recorded (Schwartz, 2006). Gamblers have left imprints throughout history in curious and surprising ways. Games of chance have evolved over many centuries, changing and maturing along with civilization. Early mathematics and statistical sciences were developed in part to explain the seemingly unpredictability of chance. Gambling thrived in the imperial courts of China and in the neighborhood of Shakespeare's Globe Theater.

Gambling in America predated the arrival of the Europeans by several thousand years as hundreds of Native American tribes had well established gaming rituals (Schwartz, 2006). The Europeans brought their own forms of gambling to the US, such as colonial ventures, including the Virginia Company, which received financing from lotteries. A tax on playing cards, which was part of the British Stamp Tax, helped rally the colonials into rebellion against the Crown. Over time, Americans have fused several cultural traditions – European, Native American, and African—into a larger gambling culture that, with advances in transportation and communications, has spread throughout the world.

Despite the improvements of modern life, we still crave gambling today. Casino gambling is a preferred form of entertainment for U.S. adults (Harrah's Entertainment,

2006). According to this study, more than 25% of Americans aged 21 and above gambled at a casino at least once during 2005, with Americans making more than 320 million total visits to casinos in 2005. The average casino trip frequency for those who do gamble is just over six trips per year. Adults with annual combined household income exceeding $95,000 are the most likely to visit a casino. This income level is correlated with casino gambling rates 55% greater than that of the lowest income level. Since 2002, income-connected U.S. casino gambling rates have remained relatively unchanged.

Its current popularity is convincing proof that gaming has become America's favorite entertainment (Shook, 2003). Today, legal gaming revenues exceed the combined amount Americans spend on movie tickets, recorded music, theme parks, spectator sports, and video games. People choose a casino for entertainment that includes interaction, excitement, and accessibility. They also choose it for the chance to win money. But a trip to a casino is not about getting rich. Instead, it is about interacting with friends and sharing time together in an environment of celebration (Shook, 2003).

As new technology has become available, people have used these advancements as improved ways to gamble and ways to market to potential customers (Schwartz, 2006). With the conveniences of the internet, gambling has grown at an exponential rate, despite internet gambling's illegal status in many countries, including the US. The internet has opened up a new opportunity for gamblers to play against opponents throughout the world. According to James McManus, an American poker player, novelist, and poet:

> A lot of folks besides federal prosecutors wonder exactly where all of this virtual action takes place. The home office may be on the Isle of Man, the hardware on an Indian reservation in Canada, with most of the staff working in a call center in

> Hyderabad, India. The players are in twenty-four time zones across all six inhabited continents and on scores of ships at sea. Dice and decks of cards may be illegal these days in most of modern Mesopotamia—they certainly are in Iran—but surely someone over there will snag a satellite hookup and sit down this morning to play with us. (p. xiv)

Evolution of Slot Machines

When the first gold miners spilled over the Sierra Nevada Mountains to California in the late 1850's, they brought gambling with them (Schwartz, 2006). Since Nevada's inception as a state in 1864, gambling has been a key part of the state's history (Kilby, Fox, & Lucas, 2005). With the emphasis on streamlined production and mechanization from the Industrial Revolution, it was only a matter of time before a machine was invented that could help people gamble faster and more efficiently (Schwartz, 2006).

In the 1870s, early gambling machines were known as "coin-in-the-slot machines" (Leen & Nelson, 2006; Schwartz, 2006;). Twenty years later these machines had reel strips depicting the king, queen, and jack playing cards, which rang a bell for a winning combination. In 1900, slot machines changed their reel symbols from playing cards to fruit symbols. The appearance of cherries, oranges, and plums on slot reels represented the flavors of gum a player could win. In 1915, Nevada gaming laws permitted nickel slot machines, which could pay off in cigars, drinks, or other prizes valued at less than $2 (Kilby et al., 2005). Gambling provided a welcome source of state and county revenue in 1931, including a $10 monthly tax for each casino's slot machine. In the early years of gambling, table games were the casino's main attraction and the "one-armed bandits" were delegated to the perimeter of the casino. In the era of Bugsy Siegel, slot machines

served as mechanical babysitters for the wives and girlfriends of high-roller table game players (Cooper, 2005).

A slot machine is defined as any licensed reel slot machine, video poker machine, video keno machine, or multigame machine (Brewer & Cummings, 1995; Kilby et al., 2005; Lucas & Brewer, 2001;). The term coin-in originally referred to the action of inserted coins into a slot machine for betting purposes. As money is inserted into the machine, the coin-in meter advances to create a cumulative total of all wagers inserted into the machine. This tracking method originally allowed casino management to track their revenues and evaluate the popularity of the machine with slot players.

The American Gaming Association (2005) further defines a slot machine as any mechanical or electronic device in which outcomes are determined by a random-number generator located inside the terminal. In 1984, virtual reel technology was invented which used a random number generator to pick a set of numbers, making the slot machine a computer program with video reels merely displaying already determined results (Leen & Nelson, 2006). Gone are the days of a carrying a bucket of nickels throughout the casino as slot players tried their luck on several nickel slot machines. Wagers on today's slot machine take a variety of forms (Brewer & Cummings, 1995; Kilby et al., 2005; Lucas & Brewer, 2001). Depending on the local regulations, the denomination of play, and the machine design, the majority of slot machines are coin-less machines. These slot machines accept paper currency, gaming tokens, paper bills of legal tender, prepaid plastic or paper bar-coded vouchers, tickets, or similar credit representations readable by the machine which can be taken to another slot machine or to a cashier. Another advantage of the new cashless technology is that it has reduced the number of coin

attendant jobs, further lowering the costs involved with the game (Benston, 2003). All MGM Mirage Resorts have been converted to cashless slot technology, a factor which boosted slot revenues according to MGM Mirage's Annual Report (2005).

No longer confined to the outskirts of the casino, slot machines have taken front and center stage by incorporating the majority of a casino's floor space (Kilby et al, 2005). They also have expanded from reels of spinning fruit to video machines featuring television personalities, game shows, or other popular culture icons which vie for the slot player's attention. Today's slot machines are the most popular casino games among U.S. adults with 71% of gamblers preferring to play slots over table games (Harrah's, 2006). Across all demographics – age, gender, and geographic location – quarter and 50-cent slots machines are the favorite.

Behaviors of Slot Machine Players

Because of the various methods of determining a game's outcome among the world's past and present societies, Roberts et al., (1959) classified games as a either a game of physical skill, strategy, or chance. Games of chance depend on your luck, games of physical skill depend on the strength and agility of the body, and games of strategy require quick thinking and strategy of the mind. Playing a slot machine is an example of a game of chance, running in a marathon is a game of physical skill, and playing poker is a game of strategy.

Games of physical skill represent hunter and warrior skills, which can be found in every tribe and country in the past and today (McManus, 2006). Game participants are required to run fast and often use lethal weapons, against either wild animals or their

enemy. Today's professional athletes mimic those feats while the spectators make financial wagers on the outcome.

Games of chance depend on luck. A common thread found throughout most societies is these gamblers believe they receive supernatural or magical aid during the game playing (Roberts et al., 1959; Schwartz, 2006). For example, Greek and Roman gods and goddesses were believed to have influence over the course of events (Roberts et al., 1959). Fortuna, the goddess of fate, was often called upon to interfere with the roll of the dice. Many current day gamblers carry their own talisman to increase their luck, many with religious symbols. In fact the Bible has several references to gambling, including references to lot casting for forms of punishment (Schwartz, 2006).

For several Native American Tribes, gambling was a serious, even sacred, pursuit (Schwartz, 2006). The Navajo's history includes stories of a gambling god, Noquilpi, and of a gambling temple at Pueblo Alto, California. Archaeological investigations have confirmed that Native Americans did not play games or make bets on them solely for amusement. Gambling served as a mechanism to redistribute trade goods and encourage interaction among neighbors. During a marathon week-long dice game, the Iroquois prayed nightly for good luck, while the losers looked for supernatural explanations to explain their bad luck.

To know the hearts and minds of earth's citizens one needs to understand gambling (McManus, 2006). From the gamblers hymn in the Hindu religion's Rig Veda in the third millennium B.C. through cockfights, dice games, and bullfights, all the way up to Internet gambling and $2 billion casinos, understanding gambling helps explain the risk-taking fervor that has destroyed lives but has also advanced human civilization. Several

millenniums later, in every quadrant of the globe, games of chance continue to feature erotic, mathematical, fiduciary, and religious components.

The motivations and experiences of the recreational gambler have been analyzed to identify the differences between slot and table game players (Titz, Andrus, & Miller, 2004; Titz, Miller, & Andrus, 1998). Both table game players and slot players derive pleasure from the pursuit of gambling. However, slot players have a tendency to be more impulsive and are more inclined to play as an escape mechanism. In comparison, table game players have a greater level of absorption in their gambling, and are more analytically inclined in terms of learning about the games and keeping track of the odds.

The pace at which a gambler plays tells a casino a lot about the player (Shook, 2003). At one end of the spectrum, a casino has slot machine players who slowly push the button. This indicates they are not frequent players, because the slowness of play means hesitation and unfamiliarity with the game. On the opposite end of the spectrum, a casino has slot machine players who rapidly hit the button. These players are confident in their playing. They enjoy the thrill and the lightning-quick, passionate feeling from playing slots.

Several studies have identified that slot player satisfaction is dependent on more than just the actual slot machine games (Johnson, Mayer, & Champaner, 2004; Lucas, Dunn, Roehl, & Wolcott, 2004; Mayer, Johnson, Hu, & Chen, 1998). These studies have examined casino atmospherics from the customer's perspective. Mayer et al. (1998) created a regression analysis model which explained 57% of the variance in slot machine customer satisfaction based on three independent variables (in order of importance); (1) experiential affect/atmosphere, (2) customer service, and (3) chance of winning. Lucas et

al. (2004) found that floor location and specific game characteristics affected slot performance. Johnson et al. (2004) investigated a casino's theme, floor layout, ceiling height, employee uniforms, and noise level. Their study found that theme, uniform, and noise level were positive contributions to the players' satisfaction with their gambling experience.

One study investigated the widely-held view that slot players are able to determine difference in the pars of reel games (Lucas, 2004). This study's premise was to see if the substantial variance associated with the amount of money a typical slot player would spend during a trip to a casino, known as a trip bankroll, would allow the studied casino to obtain a player bankrolls faster than its competitors. The goal of this casino's strategy was to maximize the return on acquisition costs, by decreasing the amount of players who left the casino without spending their entire trip bankroll. Casino executives who are able to grasp this par-performance relationship can increase their share of the customer's wallet, which can increase the casino's return on the customer's acquisition cost and move toward optimizing casino revenues.

Gaming value has been found to be a key determinate of satisfaction with the slot experience in previous research (Lucas, 2003; Lucas, Singh, & Gewali, 2007). The amount of time that a slot player spends on a slot machine, known as time on device, lies at the heart of gaming value. Given the single-visit bankroll of most slot players, there rate of bankruptcy for a slot player is 71.5 % to 99.8% for each casino visit. Therefore, losing players are forced to consider an alternate notion of gaming value, such as the experience of the time on spent on the slot machine. Time on device may be one of the few ways of communicating value to this crucial slot machine player market segment.

As a result, management needs to know which game factors affect time on device (Lucas et al., 2007). Is it par, hit frequency, or the standard deviation of the game's pay table? Increases in par will increase the aggregate casino win. Increases in standard deviation will produce greater customer payouts and as such has an inverse effect on wagering activity. Standard deviation only affects the rate at which an individual wins or losses occur but it does not affect the aggregate win. Hit frequency is defined as the number of outcomes that produces a pay-out of at least one coin, divided by the number of all possible outcomes.

Winning slot players are highly likely to leave a casino satisfied. Although slot players may realize that their chances of winning are slim, they still have expectations regarding length of play, whether measured by pulls, spins, or time on device (Lucas et al., 2007). A slot player's perception of value is most important to those players who lose their bankroll during a casino trip. Therefore, the losing players are left with more abstract notions of satisfaction, such as their time on device perceptions. Customers want maximum time on device (Cooper, 2005). They want to play as long as possible with their money and maybe even win some money too. This type of slot player prefers high hit frequency machines which almost constantly trickles back part of what you put into the slot machine but offers you little chance of a big payoff, like what a slot player gets from a low-hit frequency machine.

Importance of Slot Revenues to Casino Operations

The gaming industry has rationally transformed itself to pursuing the higher profit margins that slot machines offer (Growchowski, 1998). As such, slot machines have gained importance in the gaming industry as they their revenues have significantly

increased as a percentage of total casino revenues (Brewer & Cummings, 1995). Because of the increased focus on slots and its revenues, casino management is committing an increasing proportion of time, energy, and resources to slots.

The Bellagio has six $500 slot machines and two $1,000 machines (Kasindorf, 2003). Each can take two tokens at a time, doubling the stakes. The payoffs can reach $1.6 million. However, at three seconds a spin, a $500 slot machine can take 1,000 tokens in 50 minutes, which in a run of bad luck, could cost a player $500,000. The Wynn Las Vegas has a $5,000 slot machine (Simpson, 2006). However, the percentage of high roller slot players is a small one. Through extensive research, Harrah's determined which customer group was most profitable and underserved by the competition, the middle market (Shook, 2003). The middle market customer typically plays dollar slots and gambles $100 to $500 per casino trip. Over the course of a year, this customer gambles several times and spends $1,000 to $5,000 for recreational gaming activities.

Certain customers can be extremely valuable to the business due to their frequency of gambling and visitation (Shook, 2003). As in most service industries, the 80/20 principle holds true: 80% of a company's revenues are received by 20% of its customers. Harrah's gaming industry research revealed that 11 to 12% of gaming customers represented more than 50% of the gaming industry's total revenues. This group of people is passionate about gaming but they don't necessarily bet thousands on each wager. Instead they spread out their gambling throughout the year, spending $3,000 to $5,000 annually.

The gaming division profit margins will vary from casino to casino (Kilby et al., 2005). A more accurate percentage would be to use the actual game's direct cost and win.

A reasonable representation of a large casino's typical gaming division profit margins can be found in Table 1.

Table 1

Profit Margins of Casino Gaming Divisions

Gaming Division	Profit Margin
Slots	60-70%
Keno	25-30%
Poker room	20-30%
Table games (excluding baccarat)	15-20%
Race and sports book	15-25%

Daily-Win-Per-Square-Foot

In casino operations, the highest and best use of the casino floor space is that which maximizes profit, as opposed to revenue (Kilby et al, 2005). To identify a casino's best and highest use of its floor space, daily-win-per-square-foot is the gaming industry benchmark used to compare the relative performance of slot machines and various other games and uses of casino floor space. Because the gaming-square-foot-per casino is constrained, the win-per-square-foot-per-day is an ideal measure of profitability and operational efficiency. Potentially, a casino can change its daily win per square foot by modifying the mix of slot machines and table games, alternating the layout of the gaming area, or adjusting the marketing promotion mix.

Daily-win-per-square-foot is defined as the dollar amount that the casino retains each day per square foot of gaming space (Kilby et al., 2005). A calculation of the win-per-unit per-year and per-day as reported by the 19 largest casinos (more than $72 million in annual revenues) on the Las Vegas Strip for the 12-month period ending Jan 31, 2003 can be found in Table 2.

Table 2

Casino Game Profit Per Unit Per Day by Square Foot

Game	Total Units	Total Win (000)	Win Per Unit/Year	Win Per Unit/Day	Revenue Per Unit/Day/ Sq Ft	Profit Per Unit/ Day/ Sq. Ft.
Blackjack	1,115	$649,906	$562,689	$1,542	$12.50	$1.88 to $2.50
Roulette	192	$187,342	$975,740	$2,673	$17.13	$2.73 to $3.43
Craps	173	$276,027	$1,586,362	$4,346	$19.67	$2.95 to $3.93
Slots	47,036	$2,112,799	$44,919	$123	$12.30	$7.38 to $8.61

While a casino floor could be exclusively slots or blackjack tables, this would not be an optimum mix for customer satisfaction and profit maximization. Therefore, casino management should utilize the casino's available space to its highest and best use which will yield the highest profit-per-square-foot.

Sales Promotion

Casino marketing professionals spend their careers in the quest for the great casino promotion (Broderick, 2005). On a daily basis, casino marketers are challenged to increase casino visits and slot coin-in. This is accomplished through the frequent utilization of casino promotions to attract their targeted customers. For many casinos, a marketing promotion is considered successful when it has higher than a 30% redemption rate on a direct mailer piece. Another measure of success is when an increase in gaming floor foot traffic is noticed.

Play incentives and promotions have been cited by casino executives as crucial components of a successful casino operation (Shook, 2003). Another key component is to match the right level of marketing offer to the level of customer profitability. To be cost-effective, a casino focuses on getting highly customized offers into the hands of carefully selected groups of people to generate visitation.

Most slot marketing efforts can be classified in three categories: customer acquisition, customer retention, and customer recovery (Kilby et al., 2005). Customer acquisition involves activities such as mass mailings and appending databases in search of new sources of quality customers. General drawing-based promotions and general advertising may also be considered acquisition efforts. Customer retention efforts are usually composed of direct mail campaigns involving cash gaming incentives or food offers. For those that have the latest technology, random bonus promotions are used to motivate players to continue playing in the casino. Finally, special events, such tickets to a concert,

and slot tournaments, are directed at a certain player level for customer retention or customer recovery.

Sales promotions are used by most organizations (Kotler, Bowen, & Makens, 2006). Hospitality industry estimates of annual sales-promotion spending run as high as $100 billion. Spending has increased rapidly in recent years. Formerly, marketing budgets were 60% advertising and 40% sales promotion. Today, for many consumer packaged goods, the picture is reversed, with sales promotions often accounting for 60 to 70% of all marketing expenditures. In designing sales promotions, a company must set objectives, select the right tools, develop the best program, pretest and implement it, and evaluate the results to see if they increased both revenues and profits.

Many sales promotions consist of short-term incentives to encourage the purchase of a product (Kotler et al., 2006). These sales promotions include a variety of promotional tools designed to stimulate early or strong market response. It includes consumer promotions, (coupons and contests), trade promotion-buying allowances (free goods and cooperative advertising), and sales force promotion (bonuses and contests).

Consumer promotions can increase short-term sales or help build long-term market share (Kotler et al., 2006). The objective may be to entice consumers to try a new product, lure consumers away from competitors, or hold and reward loyal customers. Ideally, the objective is to build long-run consumer demand rather than to prompt temporary brand switching. It may not be the type of promotion that is crucial for success, but rather the execution, timeliness, and appropriateness of the promotion for the property and market (Salmon, Lucas, Kilby, & Dalbor, 2004).

Database Driven Promotional Structure

Most slot machine marketing is database driven, and casinos use this data to offer promotions designed to increase the overall business level (Kilby et al., 2005). The database is comprised of entries from slot club enrollment. Once enrolled, the player is issued a card that is placed in the machine while gaming. Most casinos award club points based on a formula derived from coin-in. The accumulation of points results in cash-back awards, comp dollars earned, or some customer incentive. There are many variations of the basic point accumulation and redemption process. Each month, Coast Casinos sends out a mailer with offers for free food, discounts, cash, and other prizes (Padgett, 2006). Annually at Thanksgiving, Station Casinos gives away free pumpkin pies to slot card holders, awarding more than 100,000 to loyal slot players in 2005.

Because gamblers have been described as "promiscuous," hopping from casino to casino, a loyalty program is designed to capture this customers' business and keep them loyal (Shook, 2003). An important for loyalty programs is the effectiveness of the clubs in establishing relationships and building loyalty (Kilby et al., 2005). A casino marketer needs to find the answers to two key questions; (1) does their slot club build loyalty or merely serve as elaborate discount vehicle and (2) is the traditional form of slot club appropriate for their casino or do modifications need to be created? The answers to these questions are necessary for the success of the program but these questions are often difficult for casino management to answer.

Baier, Ruf, and Chakraborty (2002) claim that a business doesn't officially have a customer until it has made a second sale to a newly acquired buyer and a business cannot be successful without long-term customers. Because all customers are not the same, a

company must know the lifetime value of each customer. Some customers make only one purchase and never become customers. Other customers make just a few purchases. Another set of customers buy on a regular basis for the life of the organization. Even among lifelong customers, there are tremendous differences. Some lifetime customers buy only low-margin products that have limited profitability. Other customers don't pay attention to price.

The ability to identify a company's most profitable customers is intimately tied to segmentation (Baier, et al., 2002). Casinos can combine the customer's demographic information with the technology gathered from the slot machines to strengthen the company's relationship with its players (Shook, 2003). Essentially, the slot machine is a point-of-sale device. Technology decodes the customer's actual wins and losses, the velocity, duration, frequency, denomination of play, along with the bet amount. After an hour, a casino's marketing department can analyze the data and determine if they want this player to be their customer and what types of promotions are to be used to attract the customer.

In addition, the customer data is analyzed to identify if there is a gap between the annual dollar amounts a customer spends in a casino versus the computer's prediction of the customer's share of wallet (Shook, 2003). This segmentation strategy places customers into groups and identifies who comes four times a year but has the potential to visit as many as twenty times a year. Segmentation is a key component to marketing effectiveness and profitability.

Cash Mail Promotions

Cash mail promotions consist of tiered offers in the form of cash incentives (Kilby et al., 2005). These promotions come from the information in the casino's databases, which are usually segmented according to a player's average daily theoretical win. The formula for a player's average daily theoretical win is their average bet multiplied by the average number of hours played multiplied by their betting decisions made per hour multiplied by the house advantage. Calculating a slot player's average daily theoretical win is automatically calculated in the casino's database when the player uses the slot club player card. Slot management uses the average daily theoretical to assign value to players which in turn is used to determine the value of the direct mail or cash mail promotional offer. To gain a long-term customer, the promotional goal may be to generate an additional trip.

When the database predicts that a customer has the ability to be a great customer, a casino often sends an enticing incentive with a short redemption window (Shook, 2003). Such offers will not include a hotel room offer if the customer lives nearby but it will include a cash offer to play slots. How fast the customer responds to the offer and the dollar amount gambled is gathered. If the customer responds in the predicted manner, the customer is put into the appropriate category for the next marketing wave.

However, the extended use of these types of offers has lead some slot marketers to believe that club members now perceive the offers as an entitlement (Kilby et al., 2005). Some casinos have modified their cash back programs to require players to wager at least one time to receive their cash incentive. This prevents customers who redeem their offer without gambling. However, this tactic may damage customer relations in the short term

by conflicting with their perceptions of entitlement. Requiring the customer to gamble at least once also reduces the cost of the offer by an amount equal to the bonus multiplied by the theoretical advantage of the game on which it was redeemed.

The results of cash mail programs vary according to the market, the promotional activity of the competitors, and the offers (Lucas & Brewer, 2001; Lucas, Dunn, & Singh, 2005; Lucas & Kilby, 2002). Lucas and Brewer (2001) found cash-back programs designed to stimulate slot play actually decreased casino cash flows. The study found that the promotion was unable to generate sufficient incremental gaming volume to overcome its cost structure. Lucas et al. (2005) also produced similar results when attempting to measure the effects of cash mail programs on slot volume. This study measured the effects of direct mail incentives on the trip wagering volume of individual reel slot and video poker players. The direct mail results were disappointing but increases in par resulted in significant decreases in the average trip wagering volume. This type of promotion was similar in concept to match-play coupons offered to table game players (Lucas & Kilby, 2002).

These results question the net effectiveness of the cash mail program (Lucas & Brewer, 2001; Lucas, et al., 2005; Lucas & Kilby, 2002). However, these same variables all produced statistically significant and positive effects on daily slot business volume collected as coin-in which in turn increased cash flows. A thorough analysis of promotional efforts could save millions of dollars annually and possibly prevent future losses by identifying the offer limits of disloyal slot club segments.

Complimentaries

Using promotions in an attempt to create goodwill is commonplace in today's business world. To entice their customers to gamble, casinos offer complimentary offers, known as "comping." Comping customers is a fierce competition between casinos (Shook, 2003). The cost of comping is not a minor expense for casinos. In 2002, Harrah's comped an estimated $300 million to customers, or about 7.5% of the company's gross revenues. This expense is a huge chunk off the top of revenues.

Complimentary hotel room nights were studied by Lucas and Brewer (2001). Their model findings did not produce a significant and positive effect for comp hotel room nights, which was counterintuitive. The researchers felt that a positive relationship would have been identified as the comp hotel room was based in part on the slot player's historical tracked play. The researchers felt further analysis was necessary to better determine the circumstances underlying the relationship.

Slot customers know if the receive a certain amount of credits based on their activity broken down by time and the amounts of their wagers, they will be rewarded a comped dinner (Shook, 2003). The comped dinner gives customers a short-term incentive to remain loyal to their selected casino instead of leaving to try their luck in a different casino. Now that several casinos are owned by one corporation, customers can continue to earn comp dollars at participating casinos within the slot player program.

On their annual report, MGM Mirage gaming revenues are recognized net of certain sales incentives, including discounts and points earned in point-loyalty programs (MGM Mirage, 2005). In accordance with industry practice, the retail value of accommodations, food and beverage, and other services furnished to guests without charge is included in

gross revenue and then deducted as promotional allowances. In 2005, $82 million was expensed in room costs, $255 million for food and beverage, and $35 million for other complimentary expenses.

Sheldon Adelson, Chairman of the Las Vegas Sands Corp., does not buy into the Las Vegas dogma that money can only be made in the casino, and that in order to generate casino profits, the room, the goods, and the beverages all must be given away (Shook, 2003). He believes money can be made from all of the Venetian's revenue centers. Initially the Venetian derived 40% of its profits from gaming and the other 60% from its hotel, resort, and conference operations, which was is in sharp contrast to the rest of the Las Vegas strip casinos. Over the past few years, however; the Las Vegas Sands revenue center mix has changed with almost 70% coming from gaming (Las Vegas Sands, 2005). During 2005 the Venetian spent a millions in gaming promotional allowances, including $34.7 million in food and beverage expenses, $42.3 million in hotel rooms, and $6.2 million in other promotional expenses.

Drawing-Based Promotions

Drawing-based promotions are popular in repeater markets specifically because the duration often exceeds three weeks and the chances of winning increase with the amount of play during qualifying periods (Kilby et al., 2005). The basic drawing formula is the customers earn tickets for a drawing by hitting top award jackpots on slot machines during the qualifying period of the promotion. One part of these numbered, two-part tickets is placed in a drawing drum, with the matching part retained by the customer. One selected days, drawings are held featuring guaranteed cash prizes of varying amounts. In the Las Vegas locals' market the guaranteed cash prize pools for a month-

long promotion often exceed $200,000 with some approaching $1 million. During the month of August, The Venetian held a Treasures of Venice slot promotion where Venetian Players Club members had a chance to win prizes from $100 to $1 million (Dancer & Compton, 2001).

For a repeater casino, Harrah's feels that one of their most effective promotions to draw crowds during slow weekdays is to have a drawing with a grand prize (Shook, 2003). On Wednesday afternoons, they have a drawing where $10,000 in cash is given away each week. Based on a customer's gambling activities from the previous Wednesday, the customer receives a certain number of entries for the drawing. For customers to be eligible for the next week's drawing, customers earn tickets based on their gambling on the current Wednesday and must be present at the casino the following Wednesday. This promotion brings an extra 2,000 customers into the casino because of the cash prize drawing. At cost of $5 a person, the casino feels it is an inexpensive acquisition tool to generate repeat casino visitation.

It is not just cash prizes that are popular for drawing-based promotions, slot customers are also attracted to winning automobiles, high-end electronics, and other luxury items. On Mondays, Thursdays, and Saturdays, the Rampart Casino, an off-strip Las Vegas casino offered promotions in November 2006 for slot club players to earn MP3 players and laptops just in time for the holiday season (Dancer & Compton, 2006c). During the month of September 2006, three off-strip Las Vegas casinos had slot player promotional drawings for plasma TVs (Compton & Dancer, 2006b). Since playing as a slot club member for nine years at the Orleans Casino, an off-strip Las Vegas casino, one loyal customer has accumulated a collection of high-end electronics, including plasma-

screen TVs, DVD players, digital cameras, camcorders, and a designer watch (Padgett, 2006).

The types of prizes run the gamut, depending on the desires of the casino's target market. In honor of Mexican Independence Day, the Ellis Island, an off-strip Las Vegas casino had a drawing promotion to win an authentic Mexican Sombrero valued at $150 (Dancer & Compton, 2006b). The Silverton, an off-strip Las Vegas casino, offered a drawing for a custom motorcycle worth $20,000 over three Saturdays in November 2006 (Dancer & Compton, 2006c). Station Casino's $1.25 million point challenge offered the top Boarding Pass point earners to win a Caribbean cruise or a Rolex watch (Dancer & Compton, 2007b). Throughout January 2007, local Las Vegas area Wynn Red Card players were entered in a prize drawing for a $174,000 Ferrari F-260 Coupe (Dancer & Compton, 2006d).

Despite the magnitude of the prize pools, little is know about the incremental effect of these promotions on property cash flows and their revenues. One published study of a Las Vegas hotel casino addressed this concern (Lucas & Bowen, 2002). The impact of the cash prizes was positively related to increased coin-in levels. However, the lack of incremental business volume cash flows gained by the promotion combined with the considerable promotional expenses of the prize pool expense failed to generate a significant profit.

Based on this study, Lucas and Bowen (2002) examined the suitability of this promotional strategy for the casino. They concluded that the clientele of the casino studied had been desensitized to the effects of frequent large-scale casino promotions.

Given the study's results, it was suggested to consider decreasing the frequency and restructuring the costs of the promotions and incentives.

Slot Tournaments

A frequently used event-based customer retention promotion for premium customers is the slot tournament (Kilby et al., 2005). For example, on Tuesdays and Fridays in January 2007, the Palms, an off-strip Las Vegas casino held slot tournaments for their Club Palms members to win a share of $10,000 (Dancer & Compton, 2007a). Winners were then invited to compete for $20,000 in prizes at the finals tournament at the end of the month. This month-long promotion gave away $130,000 in cash prizes. Slot Tournaments can also be held over a weekend or for a few days during the week. To celebrate St. Patrick's Day weekend, several Las Vegas casinos held "pot-of-gold" slot tournaments for their loyal slot players (Dancer & Compton, 2006a). Lucas & Brewer (2001) found slot tournaments produced positive cash flows for a Las Vegas casino.

Slot tournaments have been gaining popularity recently, especially in Las Vegas (Slot Advisor, 2007). For loyal casino slot club players, casinos hold special invitation-only tournaments, where the player does not pay an entry fee & the hotel room is complimentary or at a reduced price. These tournaments usually include a player party and award ceremony. The slot tournament is planned in a set area of the casino with matching slot machines, fitted with special programs that generate a higher rate of jackpots and point accumulation, which adds to the excitement of the event. Tournaments are traditionally divided into 15 to 20 minute sessions with machines that start with a present number of credits and that automatically stop after a certain amount of time (Slot Advisor, 2007). A common format is to give each slot tournament

participant 1,000 credits (About, 2007). Each time the spin button is hit, the maximum bet, usually 3 credits, are deducted from the starting credits. Any credits won are shown on a separate meter. A player is unable to replay any credits won. Once the set time is up, the machine will lock up and any credits not played will be lost. Rapidly hitting buttons is important as it can add more points to the total (Slot Advisor, 2007). Sometimes only a few points separate first and second place winners. The goal is to rack up as many points as possible during the allotted time. The top prize goes to the participant who accumulates the highest point total for the entire slot tournament. Prizes typically have a prize structure of $25,000, $15,000 and $5,000 for the top three winners.

Tournament sessions are spaced several hours apart so that the players have adequate time to try their luck playing the slot machines using actual money (Slot Advisor, 2007). The average slot tournament attracts about 300 participants, who will also bring a spouse or friend. For the duration of the slot tournament, there are at least 450 players in the casino, who on average loses $100 per day. This adds up to $135,000 in coin-in for the event. To stay profitable, the casino must receive more coin-in revenue than the prize money, hotel room, and party costs. Tracking the players and their guests' daily coin-in is a key component to determining the profitability of the event.

Player Special Events

Player special events, also know as slot club member appreciation parties, are a popular customer-retention tool (Kilby et al., 2005). For example, the first Saturday in May is the Kentucky Derby, the Super Bowl of horse racing (Dancer & Compton; 2004) a busy day for the casinos. The majority of the Las Vegas casino celebrations are

invitation-only parties with the day's races shown on several big screens with a complimentary food, drinks, and commemorative gifts.

For MGM Mirage (2005), a variety of factors can affect their gaming revenue results, including the amount and timing of marketing and special events for their high-end customers, and the level of play during major holidays, including New Year and Chinese New Year. During both 2004 and 2005 these marketing events were well attended. The company's financial results depend on the success in marketing to customer groups. During 2005, slot revenues increased by 8%. The Bellagio recognized slot revenue increase of over 30% and MGM Grand Las Vegas saw an increase of 10%. In both circumstances, the company credits the continued success from their Players Club affinity program and marketing events targeted at these repeat customers.

For the Las Vegas strip casino studied in this research, the marketing department planned several unique special events for their loyal players during the time period studies. For example one special event for players with an average daily win of $750 and above included roundtrip transportation from the casino to a party at Lake Las Vegas, which included a dinner cruise aboard a gondola on the lake. When the players returned to their room a gift of Tattinger champagne and matching glasses were waiting for them. Another special event planned for slot players at the casino studied as for players with an average daily win of $600 which included two tickets and transportation to their choice of a Las Vegas Strip show, such as Mystere or Celine Dion. A third special event orchestrated was a shopping event for players with an average daily win of $6,000 or higher which included a $3,000 gift certificate and transportation to the high end shopping centers of Las Vegas.

Slot Marketing Competitiveness Can Lead to Erosion of Slot Profits

The majority of published empirical research on casino promotions have indicated evidence of negative cash flows (Lucas & Brewer, 2001; Lucas, et al, 2002; Lucas & Bowen, 2002; Lucas et al., 2005; Salmon et al., 2004). This research studies have also identified that competitive pressures often increase promotional activity. Additionally, these researchers have warned that promotions may increase revenue to the detriment of profit, cautioning industry executives against desperate promotional strategies. These studies indicated that the effectiveness of a casino promotion often remains unknown. With increasing competitive pressures, many casino executives have found themselves attempting to out-bid each other by offering ever-increasing discounted promotional offers to premium players. Deal-making mistakes carry substantial financial consequences that can create detrimental long term effects. If promotional costs are unrestrained, the effect of marginal cash flow deals can be hard to decipher by the success of other profit centers.

Marketers and casino executives feel that a perception of increased foot traffic and short-term business volumes indicate a promotion's success (Broderick, 2005). Gaming promotions are often haphazardly designed. Part of the problem is many companies fail to evaluate their sales promotion programs (Kotler et al., 2006). Other companies evaluate only superficially. Many evaluation methods are available; the most common is comparing sales before, during, and after a promotion.

In Las Vegas, slot players gravitate to casinos that offer the best payoff percentage, the best progressive jackpots, or the best mix of complimentaries and payoff percentages (Growchowski, 1998). That process is becoming universal due to the degree of

sophistication of the customer. The more regular the customer base, the more price-sensitive the players will be.

But is it really the promotional deal that encourages customers to select a certain casino? Evidence exists that suggests that consumers may not behave this way (Mayer et al., 1998; Shoemaker & Zemke, 2005; Turco & Riley, 1996). A regression analysis model created by Mayer et al. (1998) was implemented to identify why a casino was selected by a typical consumer. Their survey identified that promotions were not a key component of slot player decision making. Instead their model was based on three independent variables; experimental effect/atmosphere, chance of winning, and customer service. This model explained 57% of the variance in slot machine customer satisfaction. The experimental effect/atmosphere variable had the greatest impact on slot player satisfaction in the regression model with chance of winning having the second highest weighting. The study suggested that casinos could capitalize on these findings by reinforcing these key features in their marketing strategy.

In addition, Shoemaker and Zemke (2005) found that the type of promotions offered by a Las Vegas casino ranked 23rd out of 24 choice factors, in terms of top box ratings. A similar study of a Chicago metropolitan area casino failed to list casino promotions as a choice factor crucial to the patronage of surrounding riverboat casinos (Turco & Riley, 1996). Additionally, researchers examining the patronage decisions of Native American and riverboat casino customers failed to indicate promotional activity as a crucial component of the choice process (Pfaffenberg & Costello, 2001). Other studies have identified that slot machines location, such as proximity to table games or the slot machine's micro-location affect coin-in (Lucas, et al., 2003). While a similar study

identified that the casino's slot machine servicescape satisfaction produces a significant effect on repatronage, word of mouth, and intention to stay in the casino (Lucas, 2003). Richard and Adrian (1996) explained 77% of the variance in repatronage intention scores from the sample of Mississippi casino patrons. This result was achieved via a six-factor solution which did include one scale item related to the influence of promotional aids. Aside from this contribution, the bulk of the casino patronage research fails to support the notion that promotional offers are crucial considerations in the consumer's choice process.

Price Discounting Marketing Literature

Price Discounting & Loss Leader Promotions

Researchers want to answer questions, such as why does one sales person outperform another and why do store sales differ from city to city (Dunn, 2006)? They use regression analysis to test hypothesis, and a body of academic literature evolved for industries such as grocery stores and department stores, along with service industries such as banking and hospitality.

There is a proposed correlation between promotions found in the retail industry and casino marketing (Lucas, Dunn, & Kharitonova, 2006). Because of the competitiveness of slot marketing, many marketing promotions have become loss-leaders to gain the competitive edge (Berns, 1999). Casino promotions generate foot traffic but these aggressive marketers undertake promotions without considering the match behind them. Smart gamblers can find a way to increase their advantage over that of the casinos. That is good for foot traffic but bad for the casino's bottom line. Most casino slot clubs have developed extensive information-gathering infrastructure and processes according to

(Kilby et al., 2005). However, if the focus of the slot club is to learn more about the customer without the intention of building loyalty or strengthening customer relationships, the overall process should be further examined.

For example, the marketing literature has an abundance of examples examining the negative relationship between loyalty behavior and coupon-, price-, or deal-prone customers (Kilby et al., 2005). Do slot clubs attract price-sensitive members loyal to the most attractive cash-back offer but not to the property itself? This question is important in some markets where customers may be members of several slot clubs. The intense competition to increase club membership may result in revenue buying in these competitive markets. This marketing strategy can ultimately lead to profit erosion. Great concern should be taken in the measurement of the incremental benefits associated with casino marketing offers. Promotions which result in negative cash flows are far from rare.

What is the effect of loss-leader & deep discount promotions on overall store sales, traffic, & profit? The term, "dealing" is defined as a short-term, usually a week or less, price cut to the consumer (Blattberg, Eppen, & Lieberman, 1981). After the deal is over, the price reverts back to its old level. Product manufacturers offer deals to force store retailers to reduce their prices to the consumers. Their rational is that retailers use the manufacture's deal to attract customers from other stores. However, other retailers respond by offering similar deals to be competitive. A possible result is that all the retailers in the market offer similar price reduction deals but none of the retailers have increased their profits. Unless there were other economic benefits to dealing, the study determined it is unprofitable to the retailer to offer these deals.

Blattburg et al., (1981) use an analogy to illustrate the point. Three gasoline dealers on the same corner engage in a price war. Dealer one reduces prices and gains customers. Competitors respond quickly by reducing prices and their market shares return to their previous levels. The result is that the reduced prices do not increase volume enough so that total profits for the three stations are reduced below the pre-price was levels. It is almost always the case that after some relatively short period, the stations raise the price to the pre-price war levels. Besides discounts, other forms of promotion such as trading stamps, games, and give-aways last a relatively short period of time, yet dealing has persisted for over 75 years. This type of dealing is popular in the gaming industry.

Dealing also persists because manufacturers offer lower price trade deals to retailers for two reasons: (1) to increase market share, and (2) to increase trial among nonusers of their brands (Blattburg et al., 1981). Once new consumers have tried the brand, some percentage will repurchase. Their study indicated that only when price reductions increase category volume enough to increase category profits, does dealing become economically viable for a retailer. Thus, dealing is a mechanism for manufactures to reduce the consumer's cost of experimenting with a brand they rarely or have never used.

Srinivasana, Pauwels, Hanssens, & Dekimpe (2004) studied whether price promotions generated additional revenue and if so, for whom. The first major finding was that a price promotion typically does not have permanent monetary effects for either party. The second finding was price promotions have a predominantly positive impact on manufacturer revenues, but their effects on retailer revenues are mixed. Moreover, retailer category margins are typically reduced by price promotions. Even when

accounting for cross-category and store-traffic effects, they found evidence that price promotions are typically not beneficial to the retailer.

Additionally Walters and Rinne (1986) focused on the change in overall store business volumes and profits that resulted from promotional activity. More specifically, retailers are very concerned about the change in complementary product sales, created from loss-leader sales. For example, if hamburger buns are on sale, perhaps more hamburger meat, ketchup, and mustard will be sold at their full price. Similarly, gaming executives are hoping that slot volume will increase, as a result of increases loss-leader promotions.

Walters and Rinne (1986) examined 30 loss-leader promotions, across three different stores. The results produced evidence of a significant and positive relationship between the loss-leader variable and store traffic in only two of the 30 promotions. Consistent with the previous result, the loss-leader variable only significantly and positively impacted store profits in two of the 30 instances. Nine of the 30 promotions significantly and positively influenced store sales, but no loss-leader offer created a significant impact on the sales of non-promoted products (i.e. complementary goods).

Retail price promotions failed to demonstrate significant & positive contributions to overall store sales, profits, and traffic (Srinivasana et al., 2004). Their study also failed to demonstrate significant and positive contributions to overall store sales, profits, and traffic, resulting from retailer promotions. Their study examined the long-term or permanent effects of price promotions in grocery stores. They found that 55 of the 63 promotions studied failed to produce a statistically significant impact on overall store

sales. Similarly, 85% (53 out of 63) of the price promotions studied failed to produce a significant effect on overall store traffic, beyond that of the promotion period.

However, Srinivasana et al. (2004) found that loss-leader promotions can induce new shoppers to make a purchase and these promotions work best for new products. These types of promotions can also encourage impulse-buying categories purchases. Price promotions were found to have a larger immediate impact on brand choice than on primary demand and quantity. Emerging markets were more likely than mature markets to receive a permanent effect of these marketing promotions. In terms of adjustment effects, promotional effects are short-lived (on average 2 weeks, at most 8 weeks). The authors label this behavior as advertising decay. Price promotions can induce noncategory shoppers to make a purchase, and this expansion effect cannot be entirely explained by purchase acceleration. As long as the immediate and adjustment effects are profitable, playing the promotional game appears better than staying out of it (Pauwels, Hanssens, & Siddarth, 2002).

In identifying empirical generalizations, it is useful to understand the marketing implications (Blattberg, Briesch, & Fox 1995). Promotions alter consumer behavior beyond the normal price/quantity trade-off. Promotions alter behavior by changing the time when the customer buys the product and how much the customer buys. There is also the belief that consumers will buy simply because the product is on promotion in order to be a smart shopper.

Promotions also influence the reference price of the product (Blattberg et al., 1995). Products can be over-promoted. If a product is promoted frequently and discounted deeply, the consumer's reference price of the product decreases. The consumer will buy

less of the product at regular price because his or her reservation price has decreased correspondingly. The reservation price is the price above which the consumer will not buy the product but below which he or she will buy.

The effects of promotional programs on market and financial performance are significantly different from those new product introductions (Pauwels, Silva-Risso, Srinivasan, & Hanssens, 2004). Incentive programs have uniformly positive effects in the short run; top line, bottom line, and stock market performance all increase. In other words, investors' reactions mirrors consumers' reaction to incentive programs, which is strong, immediate, and positive. However, the beneficial effects are short-lived for promotions stimulate demand only temporarily.

These findings should create a warning signal, a red flag, for casino executives. While the promotion may produce casino foot traffic, does the promotion produce profits and complementary business volume? If promotions are a form of an extended loss-leader promotion, these researchers provide additional grounds for concern regarding the ability of loss-leader promotions to increase gaming profits. In this regard, the results of the current study of slot machine marketing promotions will provide a unique addition to the retail literature.

Price-Sensitive, Deal-Prone, Cherry Picking, and Smart Shopper Customers

To what extent do price-sensitive, deal-prone, cherry picking, and smart-shopper customers have on product sales and more importantly on company cash flows and revenues? Petrick (2004) studied whether perceived value is an important indicator of future purchase behavior for first-time and repeat cruise passengers. While perceived

value proved to be the best predictor for repeat cruisers, quality was the best predictor for repurchase intentions for first time cruisers.

In a follow-up study, Petrick (2005) researched the differences in cruise passengers' perceptions in comparison with their price sensitivity. The use of price discounting in the cruise industry has attracted more price-sensitive customers than in the past. The purpose of the study was to see if price-sensitive markets were desirable. The findings indicated that cruise passengers who were "more price sensitive" had lower household incomes but rated their cruise experience highly. Cruise passengers who were "less price sensitive" had higher household incomes but rated their cruise experience lower than other passengers.

The research concluded that offering discounts to cruise passengers will attract customers who will spend less but that will appreciate the cruise line more and increase positive word of mouth (Petrick 2005). Not offering discounts may result in attracting a more affluent clientele but this group may not become loyal to the cruise line. As a result, these "less price sensitive" customers may not be substantial enough to sustain long-term profitability for the cruise line. Therefore, "more price sensitive' clientele are more desirable.

Walters & Rinne (1986) studied the effect of loss-leader and deep discount promotions on overall store sales, store traffic, and store profits. They addressed the existence of deal-prone customers. Managers complain that coupons and other forms of price reductions may induce "cherry picking," that is, they attract customers into the store only to purchase the promoted item while sales of nonpromoted items are unchanged. It is reasonable to expect that double coupon promotions work best in markets where

double coupons are an "event" because it occurs infrequently as opposed to markets where such an activity is commonplace. For gaming executives, this would equate to slot players who only play when offered a promotion.

Blattberg, Buesing, Peacock, and Sen's 1978 study empirically tested the use of panel data for five frequently purchased products. Their results indicated that deal prone households can be identified and that the key variables affecting deal proneness are household resource variables such as home ownership and automobile ownership. The empirical results show that the household resource variables, car and home ownership, were strong predictors of deal proneness. These customers are attracted to value, patronizing the store with the best deal.

In 1998, Schindler's study found evidence for the presence of a noneconomic component to the positive feelings resulting from obtaining discount rates. A discount feels better to consumers when they view themselves as responsible for having obtained the discount. There was a strong effect of the likelihood of repeat purchase and repeat word of mouth. The study also identified the joy-of-winning explanation which is defined as perceiving oneself as responsible for a gain of any perceptible size leads to the pride like satisfaction of having won in an implied game against the seller and perhaps against other consumers. The joy-of-winning explanation may help account for coupon queens, mileage maniacs, and other examples of the high degree of excitement that some consumers experience from the often relatively small gains obtained from price promotions. A monetary gain, even if small, could serve as a token of a consumer victory and could represent the pride-like feelings of competence and effectiveness that

winning evokes. This concept explains the distinct phenomenon of smart-shopping feelings.

Leisure service providers, such as casinos, usually structure promotions as contests, drawings, premiums or special shows designed to increase business volumes on a hedonic consumer needs and thus should structure promotions accordingly (Wakefield & Barnes, 1996). Leisure sales promotions may include price discounts, but frequently include the use of premiums, contests, drawings and special shows or guest appearances as temporary incentives to induce greater patronage on a given date. These sales promotions tend to add entertainment value to the primary entertainment service, rather than to reduce the regular price of the entertainment. As a result, consumers may perceive these value-added sales promotions differently than they do price-cut promotions. In developing their model, Wakefield et al. (1996) found that patronage decisions based on sales promotions were due to three primary consumer characteristics; variety-seeking tendency, loyalty to the service provider, and perceived value of the leisure service.

Model and Research Hypothesis

General Theoretical Model

Previous gaming research provided a platform for developing the current study's model to identify and explain the variation in daily slot machine coin-in volume (Lucas, 2004; Lucas & Bowen, 2002; Lucas & Brewer, 2001; Lucas et al., 2006; Lucas & Santos; 2003). The model advanced by Lucas et al. produced R^2 of 86% and 83%. The models advanced by Lucas and Santos (2003) explained the variation in the daily coin-in for each

of the three casino properties. Their study reported R^2 results of 86%, 94%, and 84%. These properties included two Midwestern riverboats and a Las Vegas neighborhood casino. Using a similar data set from the same Las Vegas repeater market casino, Lucas and Bowen (2002) and Lucas and Brewer (2001) both explained 87% of the variance in daily coin-in.

While the specific results of these studies differed in the previous paragraph, common elements were found in the specification ends of these models. All models analyzed time series data and relied heavily on the prediction power of seasonality variables. These studies featured a dependent variable measured in terms of aggregate daily coin-in, which represented the total amount of wagers accepted in all slot machines for the casino studied.

Day-of-the-week variables were employed in all of these models. Specifically, Friday, Saturday, and Sunday were identified as powerful predictor variables. Another significant variable that was found to impact casino business volume was the holiday variable. Lucas and Brewer (2001), Lucas and Bowen (2002), and Lucas and Santos (2003) all found the holiday variable significant. Ultimately, holidays and weekend day-of-the-week variables represent the presence of leisure time. For example, many people do not work on Saturday, therefore it is expected that a variable representing Saturday would produce a positive and significant effect on a casino volume. The same holds true for a major holiday period, such as the 4th of July. In fact, casinos schedule additional dealers and service staff for weekend and holiday business levels.

In most of the aforementioned studies, variables such as hotel occupancy and restaurant headcount were omitted from the models. Restaurant headcounts were

included in Lucas and Santos (2003) as this was their study's focus. However, hotel occupancy, restaurant headcount, and day-of-the-week variables never appear in a model together due to multicollinearity problems associated with concurrent business volumes (Lucas & Kilby, 2002). For example, on Saturday, hotel occupancy and restaurant volumes reach their peaks levels. Midweek, both of these business volumes declined. These business volumes rise and fall together across the days of the week, making the daily seasonality variables representative of their potential effects. The day-of-the-week variables have survived the elimination process because they have been stronger predictors of gaming volumes. This also might be due to fact they also represent the amount of leisure time available to casino customers, who do not stay at the hotel or eat in the restaurants.

Previous gaming models used the common predictor variable, promotions, which described activities such as cash mail (Lucas & Bowen, 2002), marketing and visitation incentives (Lucas & Brewer, 2001; Lucas & Santos, 2002), slot tournaments (Lucas & Brewer, 2001; Ollstein, 2007) and drawing-based promotions (Lucas & Bowen 2001). These studies found significant, positive effects for marketing variables. However, none of these studies addressed all of the casino's marketing promotions in one study. This research attempts to determine which casino marketing promotions in the period studied produce statistically significant results holding all other control variables constant. In addition, this study seeks to determine if having no marketing promotions has any effect on gaming volumes.

Finally, a simple model is easier to understand and generalize than a complex model. Despite the limited number of variables in the proposed model, see Figure 1, this model is expected to explain a large variation in gaming volumes.

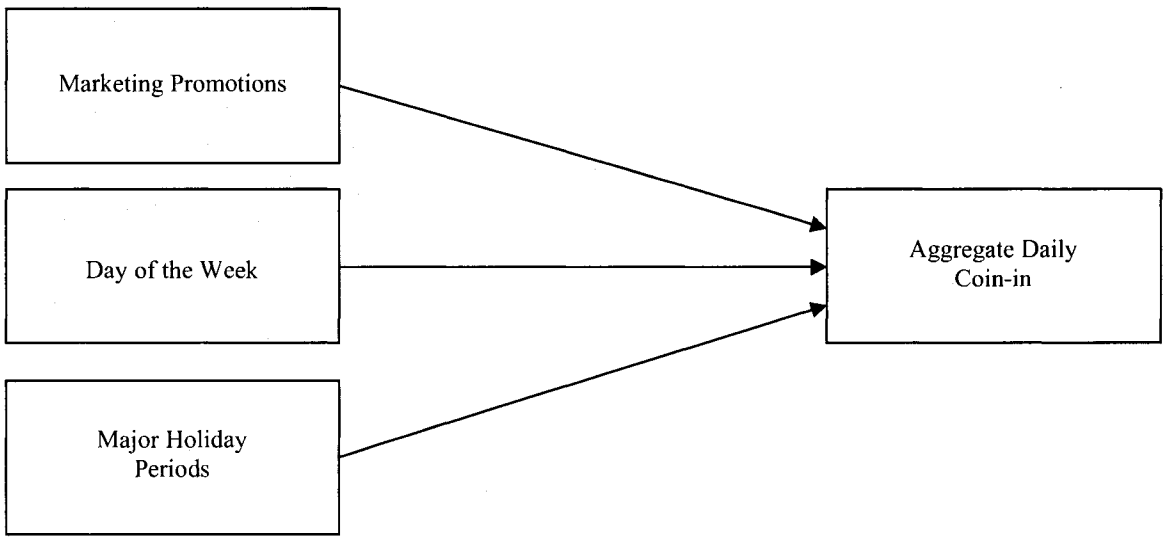

Figure 1. Theorized influences on slot machine coin-in.

Hypotheses

Given the conventional theory that casino promotions drive slot machine gaming volumes, the promotional variable was broken down into several individual variables to identify which marketing tactics have a positive and significant effect on gaming volume. The resulting hypotheses are stated in the null form, where B represents the beta or the

derived regression coefficient for each independent or control variable. For example, if existing theory suggested a positive relationship between a predictor variable and the criterion variable, the null hypothesis would test the following condition: B predictor <=0. Thus, if the null hypothesis were rejected, support would be offered for a significant and positive relationship between the predictor and dependent variables. The impact of the positive effect would be equal to B (i.e. the derived coefficient), a value significantly greater than zero, at the specified alpha level. If the results fail to reject the null hypothesis, there would be no support offered for a significant and positive relationship between the predictor and dependent variables.

The hypotheses that comprise the model (Figure 1) are as follows.

H01: Slot player tournaments will have no effect on daily coin-in.

H02: Slot player special events will have no effect on daily coin-in.

H03: Slot player product prize drawings will have no effect on daily coin-in.

H04: Days with no marketing promotions will have no effect on daily coin-in.

The null hypotheses relating to the model proposed in the current study were framed mathematically as:

H01: $B_T \leq 0$

H02: $B_E \leq 0$

H03: $B_P \leq 0$

H04: $B_N \leq 0$

B_T is the regression coefficient of the slot player tournament, B_E is the regression coefficient of the slot player event, B_P is the regression coefficient of the slot player product prize drawings, and B_N is the regression coefficient of the days with no slot player marketing promotions.

CHAPTER 3

METHODOLOGY

Introduction

The methodology chapter begins with a description of the data source and a discussion of the reliability and validity issues related to this study. The chapter continues with a review of the data analysis techniques including a discussion of the core concepts of multiple regression analysis with correction for serially correlated errors. Finally, the chapter is concluded with the expression of the criterion and predictor variables.

Data Sources

Internal and proprietary data, such as slot machines' daily coin-in and the daily marketing activity, were gathered from the internal records and systems of the subject's hotel casino property located on the Las Vegas Strip. The property's daily coin-in and marketing promotions were gathered over a 212-day period from February 1, 2005 to August 31, 2005. The secondary data were subject to periodic audits by the regulators of Nevada Gaming Control Board (NGCB). The casino relies primarily on slot machines for the majority of its revenues. Due to the proprietary nature of the data and the donors' request for anonymity, no additional financial details are available for publication.

This study used secondary data. There are several potential benefits of secondary data (Zikmund, 2003). Secondary data can be collected from existing sources, saving time and expense to the researcher collecting primary data. Although secondary data are gathered for purposes other than researcher needs, secondary sources can provide a solid starting point for exploratory research, which is the researcher's primary focus for this study. Research in finance and economics often employs secondary data to build a model in which relationships among variables are specified. Additionally, secondary data that are updated and current could be useful in decision-making for other related fields.

Secondary research does not have the self-reported biases that participant surveys can have (Zikmond, 2003). Therefore, the use of objective performance data is likely to produce more accurate findings. Additionally, secondary data analysis might provide additional pieces of empirical evidence related to the area studied which would complement the findings of previous studies. However, secondary data do not provide measures, such as motives or attitudes, even though they do provide final outcomes, such as actual buying behavior.

Reliability is defined as the level to which measures are free from errors and thereby consistently produce similar results (Zikmund, 2002). The secondary data used in this study were obtained from the internal records and systems of the subject casino. In particular, the proprietary gaming data were gathered daily in accordance with the company's internal guidelines and were subject to periodic and external audits by the regulators of the NGCB. Given the credibility of the NGCB as an audit organization, the data used in this study appeared to be reliable and accurate.

Reliability is a necessity for validity (Zikmund, 2002). Therefore, examining how valid the measure is necessary because it is possible to consistently measure the wrong variable. In general, validity refers to the degree to which an instrument measures what it intends to measure. Of the different forms of validity, content validity and external validity seemed most relevant to this study.

Data Analysis

Prior to the formal analysis, the data were screened in SPSS (version 14.0) for accuracy of data entry, missing values, normality of distribution, and outliers. Scatter plots were reviewed for nonlinear distributions and relationships. Histograms were also examined for evidence of problematic departures from normal distributions. Once the data were satisfactory screened for data entry accuracy, missing values, and outliers, a simultaneous entry multiple regression analysis was performed in EViews (version 4.0). EViews software addresses the serial correlation of error terms that is often present in time series data analysis. An initial observation of the data did not disclose any obvious outliers. Hence, the total number of daily observations was used for initial analysis. The hypothesis was tested via simultaneous multiple regression analysis at the 0.05 alpha level. Following the hypothesis testing, numerous diagnostics and scatter-plots were reviewed for violations of multiple regression assumptions.

Multiple Regression Analysis

Regression analysis has been used to test hypotheses from a body of academic literature evolved for industries such as grocery stores, department stores, and service industries, such as hospitality (Dunn, 2006). First, the basic methodology employed

involves defining an independent variable. For this study, coin-in was the measure of slot business volume, indicating the total amount of money wagered in all gaming machines. Second, a set of variables are identified, including seasonality, holidays, and marketing promotions, which were then theorized to affect the dependent variable, slot machine coin-in. Third, a model is created describing how the interaction between the dependent and independent variables. Fourth, a multiple regression analysis is run to reveal the collective contributions of individual independent variables to the prediction or explanation of the variance in the dependent variable. The end result is a predicted value for the dependent variable under the given state of the independent variables. Actual cases that exceed the predicted value are classified as over-performers while the actual cases falling short of the predicted value are classified as underperformers. Actual cases that far exceed the predicted values are classified as outliers.

When employing this type of analysis, it is important to follow proper statistical procedures (Dunn, 2006). Good regression analysis demands four key elements. First, hypothesis formulation is necessary to ensure proper selection if the dependent and independent variables. Second, data screening is required to avoid "garbage in/garbage" out errors. Third, data transformations, if needed, are used to improve model quality. Finally, model diagnostics are used to ensure statistically valid results. When analyzing the multiple regression results it is necessary to understand the predictive power and overall usefulness of the regression model.

Expression of Multiple Regression Variables

Past gaming research was used as a foundation for this study's multiple regression variables (Lucas & Brewer, 2001; Lucas & Bowen, 2002; Lucas, Kilby, & Santos, 2002; Lucas & Kilby, 2002; Turco & Riley, 1996). Because of the past studies results, the variables representing Fridays, Saturdays, Sundays, holidays, and special events were expected to have positive and significant effects on slot machine coin-in volumes.

Expression of Criterion Variable (Dependent Variable)

Coin-in represented the dependent variable in the data set. Coin-in represents the total wagered dollar amount made for all coin- or voucher-operated gaming devices during each day's play. The gaming devices including video keno, video blackjack, reel slots, video poker, and progressives. As the model depicted in Figure 1 indicates, the dependent variable was linearly related to a set of independent variables, which represented multiple sources of influences on slot machine coin-in volumes.

Expression of Predictor Variables (Independent Variables)

The day-of-the-week variables were Monday, Tuesday, Thursday, Friday, Saturday, and Sunday. These binary variables represented the effects of daily seasonality. Tuesday served as the base period in the model to determine whether the coin-in on the other days were statistically different from the base period level. Each day-of-the-week variable was assigned a value of one to represent the current day, with the remaining, day-of-the-week variables assigned a value of zero. To reduce multicollinearity in the model, only the significant day-of-the-week variables remained in the final model.

Holiday variables used were Superbowl, Chinese New Year, Presidents' Day, NASCAR, St. Patrick's Day, Easter, Kentucky Derby, Memorial Day, and the Fourth of

July. Each holiday variable was set to one for the actual given holiday and its corresponding holiday period and the variable was set to zero for days not included in the holiday period. For example, the day of the week on which the actual holiday falls can affect the business volume of days prior to or following the holiday. Therefore, some holiday periods lasted two days where others lasted a few days longer.

Finally, the promotions variable represented the marketing efforts of the casino's promotional marketing mix including gaming tournaments, special events, product prize drawings, and days without marketing promotional offers. To expand the literature from previous studies, these promotional variables were broken down individually.

A promotion variable was created for each type of gaming tournament, including slot, table games, and poker tournaments. These variables were expressed in a binary format. The slot tournament binary variable was set to one for each day the casino held a slot tournament and zero for those days which were not. There were 63 days the casino held slot tournaments during the period of the study. The table games tournament binary variable was set to one for each day the casino held a table games tournament, such as blackjack or baccarat, and zero for those days which were not. There were 20 days the casino held table game tournaments during the period of the study. The poker tournament binary variable was set to one for each day the casino held a poker tournament and zero for those days which were not. There were 16 days the casino held poker tournaments during the period of the study. These gaming tournaments were attended by certain segments of the casino's valuable slot customers in terms of historical, tracked gambling. There was no entry fee for the tournaments, and the casino hosted catered dinners and cocktail parties for the participants. The casino hosted these tournaments with the

intention of garnering side play from the participants outside of the normal tournament rounds.

The special events promotional variable was a binary variable that indicated the presence or absence of a special events marketing promotion. A value of one was assigned to days with a special event (such as a player party or a complimentary event ticket) and zero for days without a special event. There were 100 days the casino held special events during the period of the study.

The product prize drawing promotional variable was a binary variable that indicated the presence or absence of a product prize drawing. A value of one was assigned to days with a product prize drawing (such as electronics or high-end clothing) and zero for days without a product prize drawing. There were 66 days the casino held product prize drawing promotions during the period of the study.

The "no promotions" variable was a binary variable that indicated the absence of any type of promotional marketing activity. A value of one was assigned to days with no form of promotional marketing and a zero for days with some form of marketing promotion. There were fifteen days the casino did not have any marketing promotions during the period of the study.

The trend variable was created to address the seasonality of the Las Vegas destination identified in previous studies (Lucas & Brewer, 2001; Ollstein, 2006). The first day in the data set was assigned a zero, and the value of the trend variable increased by one each day. The trend variable ranged from zero to 180. It was designed to identify any linear trend present in the data. Trend was included to explain any variance associated with a one-unit increase in time across the 181-day period. A unit of time was equal to one day.

Adjustment of Autocorrelation

The marketing promotions and coin-in data used in the study were collected in sequence and referred to as time-series data. In a regression model using time-series data, the error terms are often correlated over time, with the error in one period influences the other in another period, which is termed as autocorrelation or serial correlation (Berenson, Levine, & Krehbiel, 2004). A periodic fluctuation in data, such as seasonality, is another form of serial correlation. Serial correlation occurs when either the measurement error component of the error term is serially correlated or the omitted variables in a model have a high degree of autocorrelation.

If the error terms are serially correlated, the assumption of the regression model, that the error terms are uncorrelated or independent, is likely to be violated (Berenson et al., 2004). In the case of positive serial correlation, this inefficiency will be hidden by the fact that the estimated standard errors, generated by the least-square regression, are smaller than the true standard errors, which will inflate t-values, and the estimates of regression coefficients will appear to be more precise. This in turn, may lead to the conclusion that the parameter estimates are statistically significant when in actuality they are not. Hence, the null hypotheses are more likely to be falsely rejected. Finally, F-statistics using the residual variances would also be invalid, potentially leading to a false statistical significance. Therefore, an autocorrelation (AR) variable was included in the regression equation.

CHAPTER 4

RESULTS

Introduction

The results section delves deeper into the study's multiple regression, the statistical analysis method used. This chapter begins with the study's data screening procedures, a summary of the descriptive statistics, and the outcomes of the multiple regression analyses. The chapter also examines whether the proposed hypotheses were supported by the data or not. Finally, the multiple regression diagnostics are discussed.

Data Screening

Prior to statistical analysis, the data were screened for data entry accuracy, missing values, and outliers. For purposes of data screening, SPSS (version 14.0) and E-views (version 4.1) were used. An initial observation of the data disclosed only a few outliers. Because of the exploratory nature of the study, the total number of daily observations was used for the initial analysis.

When a bivariate correlation coefficient matrix was run, daily coin-in was found to be negatively correlated in relationship to the daily trend variable, the results are found in Table 3. The results were significant at the .01 level (2-tailed). Therefore, during this study's time period, as trend increases, coin-in decreases.

Table 3:

Bivariate Correlation Coefficient Matrix: Coin-In and Trend (n=212)

	Trend
Daily Coin-In	-0.197
Sig. (2-tailed)	0.004**

** *Correlation is significant at the 0.01 level (2-tailed)*

Descriptive Statistics

Next, the descriptive statistics of the dependent variable, daily coin-in, were reviewed for further analysis, see Table 4.

Table 4:

Descriptive Statistics: Daily Coin-In Data Set (n=212)

	Minimum	Maximum	Mean	Median	Standard Deviation
Daily Coin-In	$4,388,686	$13,620,385	$7,244,581	$6,789,860	$1,855,874

Table 5 summarizes the frequency of the categorical variables. For the day-of-the-week control variables, the variables representing Mondays, Tuesdays, and Wednesdays

were ultimately omitted from the model, as these variables' values were not significantly different from each other on these days. Instead, these variables served as the base period from which all other day-of-the-week variables varied. The major holiday periods in the 212 day data set were included in the regression analysis. The holidays that failed to be statistically significant were President's Day, Easter, and the Kentucky Derby. The remaining holiday variables were found to be statistically significant and remained in the final model.

The marketing promotional variables including the casino's gaming tournaments, product prize drawings, special events, and days with no marketing promotions were included in the model. None of the table or poker tournaments were found to be statically significant factors for daily coin-in. Only the July slot tournament was found to be significant. For the July slot tournament, the casino had 400 invited guests who had an average daily win of $250. Of the special events during this study, only one was found to be significant, the casino's Summer festival, a late July event which had 700 occupied rooms for gaming customers who had an average daily win level of $1000 or greater. Of the promotional product prize drawings analyzed during the study, none were found to be significant. The no marketing promotion variable was found to be statistically significant in the regression analysis with a decrease in coin-in on those days which had no marketing promotions in place.

Table 5:

Frequency Statistics for Categorical Variables: Coin-In Data Set (n=212)

Variable:	f^a
Thursday	30
Friday	30
Saturday	30
Sunday	30
No Marketing Promotions	16
Super Bowl Weekend	4
Chinese New Year	4
Nascar Race	5
St Patrick's Weekend	3
Memorial Weekend	4
July 4th Weekend	5
July Slot Tournament	4
Summer Festival	3

Note: [a] The frequency of categorical variables. The number of days the variable was assigned a value of 1.

A residual plot was used to pinpoint the outliers as noticed in the histogram in Figure 2. There were peaks found in the coin-in data on dates July 30, March 11, and February

20. Upon further analysis of the promotional data, the outlying observations might possibly be explained by the occurrence of the particular marketing events for those dates.

For instance, the first outlier was identified as Saturday, July 30, with a daily coin-in of $11,634,353. On that date, the resort had 1055 rooms were filled with gamblers who had an average daily win of $750 to the casino for a poker tournament. However, the overall four-day July poker tournament was not determined to be statistically significant in the regression analysis. A second outlier, identified as Friday, March 11, with a daily coin-in of $13,620,385, the maximum daily coin-in for the data set. This day had 918 rooms filled with slot players with an average daily win of $400 for a special event which included Nascar race tickets and events. The five-day Nascar weekend was determined to be statistically significant according to the regression analysis.

The third outlier was identified as Sunday, February 20, with a daily coin-in of $10,375,146. This day had 128 hotel rooms filled with players who had an average daily win of $750. These guests were staying at the casino for either the casino's slot tournament or the high-end electronics product give-away. However, the President's Day weekend was not determined by the regression analysis to be statistically significantly.

These outliers of coin-in volumes could be possibly explained by the increase in gaming volumes by the casino players who were attracted by the casino's promotions. Conversely, the outliers could simply be random variations. Because of the exploratory nature of this study, the decision was made to keep the outlying cases in the regression in hopes that the results may provide important information. In these instances it appears that this study had cases with extreme values resulting from extraordinary events.

Therefore these outlying cases were retained to properly represent a part of the population from which the sample is drawn.

Multiple Regression Analysis Results

The study's multiple regression model has an R-squared of 0.8659 and an adjusted R-squared of 0.8556. The R-squared expresses how tightly the model's line fits through the data points (Berenson, Levine, & Krehbiel, 2004). A value of 1.0 indicates a perfect fit, while a value of 0.0 indicates no correlation. A value of 0.8556 suggests our equation explains 85.56% of the variance in the dependent variable, coin-in. Both the R squared and the adjusted R squared were significant at a probability of 0.000000. The model F statistic of 59.757 was significant ($df = 14, 197, p < .0001$).

A summary of the simultaneous regression analysis for the variables predicting daily coin-in for the data set can be found in Table 6. The model's Variance Inflation Factors (VIF), a collinearity diagnostic, were examined to assess the level of multicollinearity. If a set of explanatory variables is uncorrelated, each VIF is equal to 1. If the set is highly intercorrelated, then a VIF might even exceed 10. Because the VIF values are approximately 1, there is no reason to suspect any collinearity for the coin-in model.

Table 6:

Summary of Simultaneous Regression Analysis for Variables Predicting Daily Coin-In (n=212)

Variable	VIF	B	Prob	SE B
Intercept		$6,212,025	***	$235,765
Thursday	1.165	$942,161	***	$142,395
Friday	1.224	$2,680,415	***	$168,735
Saturday	1.224	$3,386,928	***	$167,620
Sunday	1.212	$1,927,000	***	$142,920
Super Bowl	1.079	$1,485,885	***	$519,205
Chinese New Year	1.076	$2,125,798	***	$519,827
Nascar Race	1.051	$2,414,560	***	$500,831
St Patrick's	1.044	$1,358,543	***	$550,455
Memorial Day	1.016	$2,032,078	***	$512,471
July 4th	1.026	$2,103,731	***	$514,131
July Slot Tournament	1.045	$1,364,312	*	$541,765
Summerfest	1.045	$1,623,183	***	$542,231
No Promotions	1.086	-$394,366	*	$213,271
Trend	1.249	-$4,486	***	$1,797
AR(1)		0.5299	***	0.0624

Note: *** $p < .01$. ** $p < .05$. * $p < .10$.

Multiple Regression Diagnostics

In multiple regression analysis, there are several assumptions related to the variables and the errors which need to be fulfilled. When the assumptions are satisfied, regression models become more valid because of unbiased regression estimators and their minimum variances (Berenson, Levine, & Krehbiel, 2004). As a result, four key items were examined for this study; (1) assumptions of normality, (2) linearity, (3) homoscedasticity, and (4) independence of errors.

First, a histogram of the residuals of the dependent variable, daily coin-in, were checked to examine whether they were normally distributed with a zero mean and a constant variance. A graphic review of the deleted residuals failed to indicate the presence of problematic outliers in the final models. While there were a few cases that appear to be outliers, they are within three standard deviations of the mean. Therefore the study's multiple regression passed the first test; assumptions of normality.

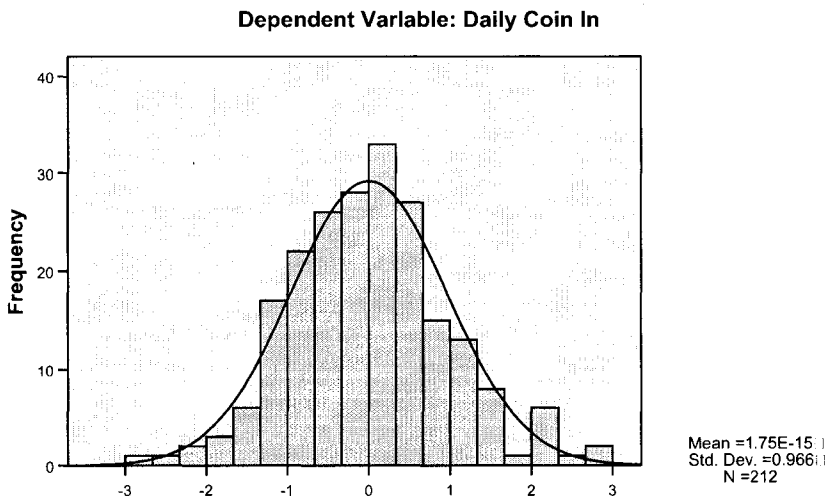

Figure 2: Histogram of coin-in residuals.

A scatter plot of residuals vs. predicted values was examined to assess for violations of homoscedasticity and linearity assumptions (see Figure 3). A visual inspection of residuals plotted against predicted values indicated small departures from homoscedasticity in initial regressions. A scatter plot of the studentized deleted residuals and the adjusted predicted values revealed no evidence of non-constant variance in the model residuals, nor did it reveal any indication of nonlinearity in the solution. A few outliers were again identified.

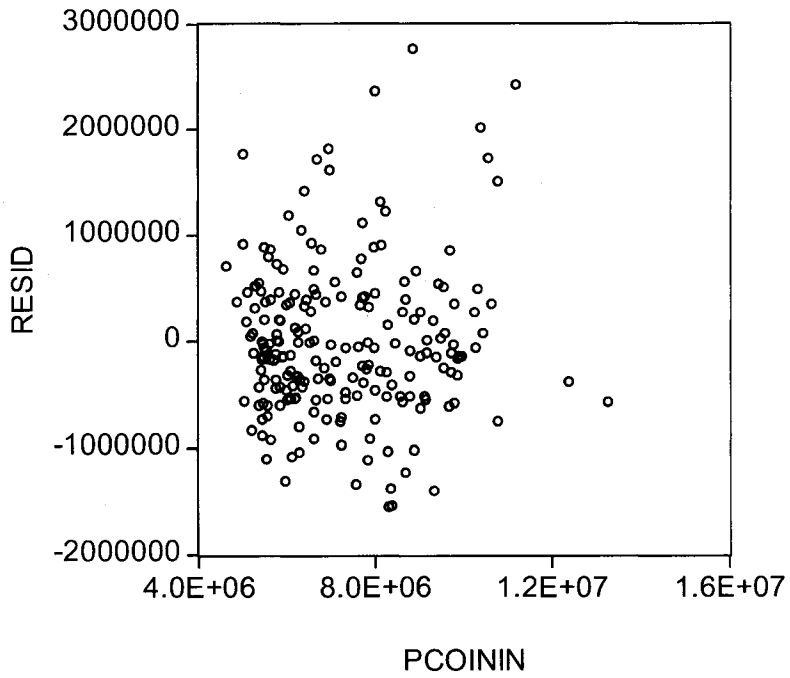

Figure 3. Scatter plot of the coin-in residuals.

The final multiple regression assumption is the independence of the errors. The error term for one period should not be correlated with the error terms from any preceding periods. A visual inspection of a correlogram for the model's residuals found in Figure 5 failed to indicate the presence of significantly correlated error terms at 36 lags. Therefore, the study's multiple regression passed all four levels of validity for multiple regression analysis.

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
.|. |	.|. |	1	-0.027	-0.027	0.1568	0.692
.|. |	.|. |	2	0.043	0.043	0.5590	0.756
.|. |	.|. |	3	0.031	0.033	0.7647	0.858
.|. |	.|. |	4	0.005	0.005	0.7710	0.942
.|. |	.|. |	5	-0.027	-0.030	0.9300	0.968
*|. |	*|. |	6	-0.078	-0.082	2.2723	0.893
.|. |	.|. |	7	0.024	0.022	2.3964	0.935
.|. |	.|. |	8	-0.036	-0.026	2.6871	0.952
.|* |	.|* |	9	0.071	0.074	3.8125	0.923
.|. |	.|* |	10	0.063	0.069	4.7005	0.910
.|. |	.|. |	11	-0.040	-0.047	5.0644	0.928
.|. |	.|. |	12	-0.018	-0.037	5.1367	0.953
.|. |	.|. |	13	0.000	-0.002	5.1367	0.972
.|. |	.|. |	14	-0.036	-0.033	5.4264	0.979
*|. |	*|. |	15	-0.090	-0.074	7.2949	0.949
*|. |	.|. |	16	-0.058	-0.056	8.0680	0.947
.|* |	.|* |	17	0.091	0.094	9.9874	0.904
.|. |	.|. |	18	-0.045	-0.032	10.453	0.916
.|. |	.|. |	19	0.057	0.040	11.202	0.917
*|. |	*|. |	20	-0.096	-0.110	13.370	0.861
.|. |	.|. |	21	0.055	0.042	14.073	0.866
.|. |	.|. |	22	-0.010	-0.004	14.097	0.898
.|* |	.|* |	23	0.093	0.114	16.147	0.849
.|. |	.|. |	24	0.048	0.060	16.702	0.861
.|. |	.|. |	25	-0.023	-0.004	16.831	0.888
.|* |	.|* |	26	0.188	0.151	25.394	0.497
.|. |	.|* |	27	0.063	0.070	26.359	0.499
.|. |	.|. |	28	0.055	0.048	27.091	0.513
*|. |	*|. |	29	-0.084	-0.083	28.826	0.474
*|. |	*|. |	30	-0.091	-0.120	30.869	0.422
*|. |	*|. |	31	-0.078	-0.095	32.370	0.399
.|. |	.|. |	32	-0.028	0.005	32.565	0.439
.|. |	.|. |	33	-0.050	-0.042	33.202	0.457
.|. |	.|* |	34	0.060	0.073	34.121	0.462
.|. |	.|. |	35	-0.023	-0.048	34.261	0.504
.|. |	*|. |	36	-0.019	-0.087	34.353	0.547

Figure 4. Correlogram of the Model's Residuals, Sample: 2/01/2005 8/31/2005 (n = 211).

CHAPTER 5

DISCUSSION AND IMPLICATIONS

Introduction

This chapter begins with discussing the theoretical implications of this research. The next section discusses the managerial implications related to the model results. Lastly, this chapter lists both the limitations associated with this study as well as recommendations for future research.

Theoretical Implications

Both the R-squared (86.59%) and the adjusted R-squared of (85.56%) were substantial in the model. The remainder of the variation in slot coin-in was either caused by omitted variables or was simply the result of random variation.

The gaming literature suggests that free leisure time drives gaming volume. As in previous studies, the day-of-the-week variables, Thursday, Friday, Saturday, and Sunday all were found to be significant variables for increasing coin-in. Holidays, another form of free leisure time, were also found to be significant. In this study, six of the nine popular casino holiday periods supported this conventional wisdom by indicating the presence of a significant relationship between holidays and gaming volume. The magnitude of the regression coefficients of these variables were large, indicating the impact of seasonality on gaming volumes. Furthermore, the results of the model support

the findings of Turco and Riley (1996) with regard to the notion that time and convenience are key factors related to casino patronage.

Conventional wisdom and gaming research have identified that casino promotions are an important factor for increasing coin-in. However, only a small number of the marketing promotions in this study were found to be significant. The results of the hypotheses advanced are as follows.

Hypothesis 1

Slot player tournaments will not produce an effect on daily coin-in. The results of the study's regression analysis found that of the 63 days in which the casino held slot tournaments, only one slot tournament (four days) was found to be significant. During that slot tournament, daily coin-in increased by $1,364,312. None of the table games tournaments (20 days) or poker tournaments (16 days) were found to be significant in effecting coin-in. However, the regression analysis of all 63 slot tournament days failed to reject the null hypothesis. Therefore, slot player tournaments will not produce a positive effect on daily coin-in.

Hypothesis 2

Slot player special events will not produce an effect on daily coin-in. Of the 100 days in which the casino held a special player event, such as a player party, only one special event (three days) was found to be significant. During that special event time period, daily coin-in increased by $1,623,183. However, the overall regression analysis failed to reject the null hypothesis. Therefore, slot player special events do not produce a positive effect on daily coin-in.

Hypothesis 3

Slot player product drawings will not produce an effect on daily coin-in. None of the 66 days of product give-away marketing promotions were found to be significant during the period of the study. The overall regression analysis failed to reject the null. Slot player product drawings do not produce a positive effect on daily coin-in.

Hypothesis 4

Days with no marketing promotions will not produce an effect on daily coin-in. The No Promotions variable which represented days with a lack of marketing promotions was the only hypothesis in this study that was found to be statistically significant at a $p<0.1$. Of the 15 days the casino did not have any marketing promotions, slot machine coin-in decreased by $394,365. The regression analysis rejected the null. Therefore not having a marketing promotion does negatively impact daily coin-in.

Are Casino Marketing Promotions a Critical Element for Coin-In?

The only hypothesis that rejected the null is the no marketing promotion variable, meaning that days with no marketing promotions decrease daily coin-in. Therefore it can be summarized that in some form, casino marketing promotions are a critical element of coin-in. But to what extent? Because of the above findings, additional investigation into the marketing promotional mix was necessary. Therefore, further examination of the large scale promotional events held at the casino during the time period studied.

The findings indicated that many of these marketing events were held in conjunction with major holiday periods, a weekend, and/or another marketing promotion. For example, St. Patrick's Day is usually a popular day at the casinos because of the Irish-themed promotions offered throughout the weekend, from receiving two free St. Patrick's

Day coffee mugs, t-shirts, or "pot-of-gold" cash vouchers (Dancer & Compton, 2006a). The same can be said of almost any holiday period in a casino. Figure 5 summarizes the casino property studied large scale promotional events to better identify which holiday and/or promotions combinations were statistically significant and which ones were not. Large scale casino marketing events were defined as tournaments, product drawings, or special events which used 300 or more hotel rooms for the promotion.

Key Holiday or Promotion	Additional Marketing Promotion(s)	Number of Days	Number Rooms Used	Players ADW	Statistical Significance
Superbowl Weekend	Product Give-Away Player Event Slot Tournament	4	1104	400	***
Chinese New Year	Slot Tournament Player Event	4	682	400	***
Nascar	Player Event at NASCAR	5	792	400	***
St Patrick's	Slot Tournament Product Giveaway	3	315	400	*
Easter Weekend	Poker Tournament	4	970	150	ns
Kentucky Derby & Chinese Concert	Slot Tournament Product Giveaway Player Event	3	576	250	ns
Memorial Day Weekend	Slot Tournament Product Giveaway Player Event	4	503	300	***
June Slot Tournament	Table Game Tournament Player Party	4	828	250	ns
July 4th Weekend	Cash Promotion Player Event	5	518	600	***
July Slot Tournament	Slot Tournament Player Event	4	583	250	*
Summer Festival Celebration	Player Event	3	746	1500	***
Poker Tournament	Player Event Product Giveaway	4	1048	250	ns
August Slot Tournament	Slot Tournament Product Giveaway	3	517	250	ns
Specialty Slot Tournament	Slot Tournament for New Slot Machines	4	605	400	ns

Note: *** $p < .01$. ** $p < .05$. * $p < .10$. ns indicates not significant.

Figure 5. Large scale promotional events.

Managerial Implications

The results of this investigation are as perplexing as they are helpful. Based on this information, it is difficult to know if it was the holiday, the promotion, the day of the week, or perhaps the synergy of all three variables that influenced the impact on the slot machine coin-in. Further analysis of the total costs involved for each casino marketing promotion should be factored into the equation to ensure the promotion did not incur negative cash flows, in effect, become a loss-leader promotion.

Casino executives must ask: What would be the impact on slot revenue if the casino did not offer slot promotions on major holidays? What if the slot promotions were limited to increasing revenues on non-peak days? What percentage of the customers would continue to patronize the casino? What percentage of the casino's slot clientele would choose to patronize competitors who did have promotions during peak periods? All of the answers to these questions depend on the competition and the deal-prone behavior patterns of the customers. In any situation, management will have to weigh the alternatives and attempt to find the optimal decision on a case-by-case basis, factoring in the actual cash flows from the promotion and subtracting the true costs to determine the profitability of the promotion. If casino executives do not consider the estimates of incremental coin-in from a marketing promotion, they may not be maximizing their promotional strategy.

The value of this study lies in its ability to help casino managers identify what marketing promotions are effective and which are not. The results should be based on facts, such as coin-in revenue, and not on elusive notions, such as increased casino traffic. The model from this study can be used by casino managers to predict the individual

effects of marketing efforts, including special events, product prize drawings, and slot tournaments. Additionally, this paper offers general strategies to assess marketing events. This study does not support the free wheeling marketing strategies of the gaming industry. Managers who follow this model can pull back, sort through and analyze the actual revenues and costs of each marketing event in an attempt to analyze the true profits of the event. Ideally, a more targeted marketing strategy can unfold, which could create bottom line profitability.

As noted in previous gaming models, the presence of leisure time was found to impact casino revenues (Lucas & Bowen, 2002; Lucas & Brewer 2001; Lucas & Santos 2003, Ollstein 2007). These gaming marketing studies also identified that Friday, Saturday, and Sunday were powerful predictor variables, as well as major holidays. This study confirms the previous studies. Additionally, slot tournaments were found to have significant positive effects on coin-in (Lucas & Brewer, 2001; Ollstein, 2007). This contradicts the findings in this study. Only one stand alone slot tournament was found to be significant, producing an increase of coin-in revenues of $1.3 million. However, the overall slot tournament variable in the regression equation was not found to be significant.

Cash drawing-based promotions were found to have a significant positive effect on coin-in in a previous study but the study also identified that the cash prize costs often outweighed the profitability of the promotion (Lucas & Bowen, 2001). In this study, product prize drawing-based promotions were not found to have a significant positive effect on coin-in revenues. While none of the previous studies mentioned what the effect was on casino revenues when no marketing promotions were in place, this study did. The

results indicated that days without any marketing promotions do have a significant negative effect on coin-in, producing an approximate decrease in coin-in of $400,000.

Using this model offers a more complete solution with casual variables because it takes all marketing factors into account. Currently most casino used a comparative analysis which only features a few variables. This model takes into consideration all variables giving it a higher degree of effectiveness. Profitable casino marketing is linked to building measurement of each promotion. This model puts forth a legitimate attempt to do so. It attempts to solve the modern day problem of singling out the effect of individual promotions.

Limitations

There are limitations to all research. The most obvious limitation to this study is that the data originates from a single casino property. As such, the results of this exploratory research may not be generalizable. It is possible that in a different market, such as a repeater market or a destination market with limited or no competition, the results would be different. In addition, the casino did not provide the actual costs for each promotion during the time period studied. Because of the expense of these promotions, it would be beneficial to determine the statistical relationship between these promotions and the appropriate business volume.

This study employed internal and proprietary data collected from an actual casino, and therefore, the results of this study could have high real-world applicability. While it can be beneficial to consider the results and theories of others, it is not necessary to solely rely on those findings. However, the extent to which the results of this study could be

transferable to other casino is somewhat limited due to differences in casino settings, promotional strategies, casino clientele, or time period. Because no two casino operations are alike, it is recommended that casino executives analyze data generated by their own operations. However, the unique operating parameters associated with individual casino operations are likely to affect the model specification across properties.

Nonetheless, the results will help management at this particular property by providing a starting place for investigating the issues surrounding their marketing decisions. The results can provide insight into the issues of slot management, making future research in this area important for building a body of knowledge for the gaming industry, as well as the leisure service industries. Assuming the model is appropriately specified, when other casino properties are studied, validity will be increased as subsequent analysis produce similar results.

This paper did not look at the effect of casino marketing promotions on non slot-machine play, such as table game, poker room, or sports book revenues. It is quite possible that the marketing promotion effect on these revenues is similar to or greater than slot-revenue impact. It is unfortunate that the table drop metric does not provide enough information to allow a specific analysis of this potential relationship.

Another limitation is the use of multiple regression analysis. This statistical technique is used to model relationships between independent variables and a dependent variable but it does not directly address the issue of causation (Berenson, Levine, Krehbiel, 2003). Although regression analysis reveals relationships among variables, causal relationships cannot be determined nor can unmeasured variables. To identify causal relationships or unmeasured variables experimental research is necessary. Casino

management, however, can be reluctant to conduct field experiments because it could interrupt a customer's play and negatively affect the overall experience. Despite the methodological limitations associated with multiple regression analysis, this study provided a good starting point for this exploratory study against which further research can be compared.

Recommendations for Future Research

One recommendation for future research would be to replicate this study at a different property. It would be beneficial whether the study used different time periods, different markets (repeater vs. tourist), or different locations (Atlantic City, Biloxi, Native American Casinos, Riverboats, Australia, Europe, or Macau). Any empirical research employing a model similar to the one shown in Figure 1 would certainly help gaming and leisure studies researchers and executives better understand the associated effects of marketing programs.

Another recommendation for future research could include the use of an extensive observation study in combination with statistical modeling. What are the behaviors of casino patrons during select promotions? Are the influences of promotions different on slots that that of video poker? Are slot players profitable to other casino outlets; hotel rooms, restaurants, or entertainment?

According to Zaltman (2003) without a deep understanding of consumers' hidden thoughts, feelings, and the forces behind them, marketers cannot accurately anticipate consumers' responses to products. A deeper understanding of customers is the only sound basis for developing a marketing strategy. This is best done by understanding the

metaphors behind the product, because the metaphors have the ability to unearth the hidden thoughts and feelings that have a profound influence on consumers' decision making. In future studies, it would be helpful to uncover the true reasons a slot player participates in a marketing promotion. Are casino slot coin-in revenues increasing because the day falls on a holiday, or is it the marketing enticement (tournament, drawing, or special event), or perhaps an unknown quality, such as the feeling of being appreciated? The results of this type of investigation would be greatly appreciated as they could get to the true heart of the consumers' decision making process.

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