Assessing Sports Advisory Services: Do They Provide Value for Football Bettors?

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Abstract:

This study examined the effectiveness of sports advisory services in football betting. Using three different cases with recent data, it compared the actual outcomes of the football games to sports advisory services' predictions in order to test their prediction accuracy for those games. The results showed none of the three data sets exceeded the threshold for profitable wagering. Thus, in football wagering, sports advisory services often fail to achieve their claims of accurate game prediction capabilities. The study suggests that these services may not provide any real advisory value to the sports betting community.

Key words: Sports books, sports advisory services, expert handicapping, casino gaming, professional football, college football.

Introduction

The sports advisory service industry exists within the realm of sports betting. The industry consists of handicappers who provide selections, on a fee basis, to consumers for the purposes of wagering on sporting events. While numerous studies have measured the efficiency of sports betting markets, much less research has been conducted regarding sports advisory services. This paper will help overcome this apparent lack of research by studying handicapping services pertaining to professional and college football in the United States.

Presumably, a primary reason for a bettor to utilize a sports advisory service is financial, as the consumer may expect to gain a statistical advantage and bet profitably through the use of handicapper selections. As such, it would be beneficial to understand if service handicappers are consistently able to provide consumers with winning selections. Using a variety of qualitative and quantitative data sources, this study will attempt to evaluate the effectiveness of sports advisory services. Their effectiveness will be assessed by a qualitative evaluation of such services, based on literature review and interviews with several sports betting industry figures, as well as a quantitative review of winning percentages for advisory service handicappers using four secondary data sources. However, before attempting to assess the effectiveness of these services, the paper will discuss how the sports advisory service industry operates.

Overview of Sports Advisory Service Industry

The consumer market for sports advisory services is sizeable. One industry observer estimated that over a thousand of these operations exist (personal communication, October 30, 2006). While many of these services are owner-operated and small in scale,

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others are quite large. For example, Winning Edge International [stock symbol WNED] is a publicly traded firm, and had annual revenues for handicapping information sales of $4.8 million during the fiscal year ended July 31, 2006. These figures are indicative of a relatively large market. Given the sizeable amount of consumer spending on these services, it would be beneficial to understand if consumer activity and confidence in this market are justified by the services that are provided. Traxler (2004) questioned the legality of sports advisory services, which could be argued to be in violation of federal laws pertaining to "information assisting in the placing of bets or wagers". However, this study will not examine the legality of sports advisory services. It is assumed that such services will continue to operate, so this paper evaluates the industry on an "as is" basis.

Several industry terms are used in this paper and need to be clarified. For instance, a *sports advisory service* is a business which charges a fee to consumers for selections on sporting events, for the purposes of sports wagering. A *handicapper* is an individual who analyzes information pertaining to a sporting event for the purposes of making a betting selection. Further, the term *service handicapper* refers to an individual who issues selections for a sports advisory service. Since many sports advisory services consist of a single operator, the term *service handicapper* is often synonymous with *sports advisory service*. One widely used betting term used in this paper is the *total* or *over/under*, which refers to a projected number of points that will be scored by both teams (combined) in a single football game.

Sports books that accept wagers on football utilize a pricing structure which creates a statistical house advantage. To overcome this statistical advantage and bet profitably, a basic strategy bettor must make winning selections at a rate greater than 52.4 percent of the time (this calculation is explained later). Previous studies have indicated that sports betting markets operate much like financial markets, and are generally efficient. In both markets, the concept of efficiency states that all available information is reflected in current market prices. Thus, an effective sports advisory service must be able to overcome the house advantage as well the inherent efficiency in the football betting market.

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The size of the sports advisory service industry makes it too large to be completely reviewed in the scope of a single paper. This paper is intended to review only one aspect of the industry - the effectiveness of the overall sports advisory service industry for football bettors. While sports advisory services provide information on all sports, the results in this study are limited to National Football League and NCAA Division 1A college football wagering; separate research would need to be conducted for other sports. This paper reviews the overall industry, and is not intended to evaluate specific individual services. Also, because the industry is fundamentally designed to charge for the selections it offers, using a complete census of sports advisory services would be cost prohibitive, so a sample of firms was used instead. The secondary data used for evaluation in this study are limited to information available from free sources, including Internet monitoring services and posted results from handicapping contests and Internet sports advisory service sites.

As its most significant source of data, this paper utilizes the National Sports Monitor, a website which tracks the win/loss records of sports advisory services. The business model for this website includes the referral of customers to those services which are recording the best records; the website also accepts advertising from various sports advisory services. These factors could present a potential conflict of interest on the part of the monitoring service. However, the site utilizes several safeguards to increase the likelihood of accurate tracking, which is discussed later in the methodology section. Based on these safeguards, it is believed that the resulting data in this paper are unbiased for the purpose of performing a quantitative review of sports advisory services.

Secondary data in this study are sampled for a given point spread on a game. The summaries in this study do not take into account the effects of point spread (or total) moves during a particular week of sports betting market activity. Such line changes can affect the win or loss outcome, both for a gambler and for the success rate calculated for a service handicapper. To minimize this factor, this paper generally attempts to utilize the point spread or total recorded by an impartial source at the time a selection was released by a sports advisory service.

The study involves services which charge a fee for selections. In concept, a consumer of sports advisory services would need their betting results to not only be profitable, but would also need to cover the cost of the service fees. However, this premium is impossible to calculate, since such fees may vary widely among individual services, and individual bettors would employ different wagering practices, including the amount of their average bet. Based on these factors, this paper does not incorporate any service fees (or income tax effects) into the calculation of minimum accuracy required for profitable betting.

Several assumptions were made in order to conduct the review of numerical data in this paper. This paper utilizes a percentage threshold as the proportion of winning bets required to break even. The calculation incorporates the standard Nevada odds system for football wagering, which occasionally deviates for certain contests based on market conditions (for example, a bet may require a wager of 120 units rather than the standard 110 units). Such deviations are considered immaterial for the purposes of this paper. The breakeven threshold assumes basic strategy for football betting, consisting of individual bets on sides (point spreads) or totals. The threshold calculation does not account for other types of wagering activity, such as parlays (bets which consist of multiple games), teasers (wagers which utilize alternative point spreads or totals), money lines (bets based on odds rather than point spreads), propositions (exotic wagers based on outcomes not directly associated with the final spread or total), or other bets.

The threshold for profitable wagering is herein defined as the winning percentage required by a bettor to overcome the house advantage built into football betting. Sports books typically require a bettor to wager 110 units, where a winning bet returns an additional 100 units, and a losing bet is kept by the house. Assuming that separate $110 bets result in two-way action (different bettors wagering on opposite sides of the same contest), the sports book achieves its house advantage by collecting $220 in total wagers, while paying out only $210 to the winning bettor. Vergin and Scriabin (1978) describe the calculation of breakeven wagering from the perspective of the bettor. To determine the proportion of winning bets, p, set the expected winnings equal to the expected losses, or $p(100) = (1-p)(110)$.

Solving the above equation yields $p = 0.524$, where winning wagering requires a winning percentage of at least 52.4. Thus, 52.4 percent is used in this study as the threshold for profitable wagering. This paper also refers to *random* wagering results. It is assumed that wagers consisting of purely random selections would result in a winning percentage of 50.0. The next section of this paper discusses the depth interviews that were conducted and the literature that was reviewed pertaining to the sports advisory service industry.

Industry Depth Interviews

In order to go beyond the available base of published literature, depth interviews were conducted with certain individuals noted for their knowledge within the sports betting community. These key individuals are all located in Las Vegas, and provided a rich source of additional information about the industry that was not otherwise available in a published form. Their assistance was invaluable, and much of the industry background information that follows was gathered from the depth interviews with these key personnel.

Industry Entry

One feature of the sports advisory industry is the absence of barriers to entry. Essentially anyone can claim to be an expert handicapper, as there are no licensing requirements or regulatory agencies involved. Since revenues are derived primarily from telephone or Internet sales, operations can be "virtual" and conducted from any location. Capital investment can be minimal; there is no outright requirement for investment in a physical plant or office space, although some operators do have such facilities. Beyond the need for telephone or computer systems, the primary functional requirements are to handicap sports and generate sales through marketing efforts (personal communication, November 9, 2006).

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Industry Participants

Operators in the industry span a wide range of organization size. The smallest operations consist of individuals who work from their homes. Some handicappers form coalitions and operate in groups, normally under the direction of one key individual; Jim Feist, Phil Steele, and Tim Trushel are examples of individuals who oversee such operations. One company, Winning Edge International (WNED), is a publicly traded corporation led by its chairman, Wayne Allen Root. The total number of operators in the industry is difficult to track; the minimal barriers to entry and exit allow the number of operations to fluctuate. One of the experts interviewed for this study stated that he has spoken with over 250 service handicappers, and estimated there could be a thousand such operations at any given time (personal communication, October 30, 2006).

Revenue Generation

Sports advisory services generate revenues in a variety of ways. A common format is the season package, where the consumer receives all selections issued by a service for the duration of a particular season (for example, the 2006 college football regular season) for a stated price. However, selections can be sold in any format: on an individual basis; on a weekend basis; on a monthly basis; for the post-season; or, any other conceivable combination. Prices can vary among service providers, and a single service may offer a variety of pricing plans. Some services also request clients to return a portion of all winning wagers which were made based upon the service's information (Traxler, 2005). WNED generates some of its revenues through advertising sales on its website and within its televised infomercial. Other services issue a newsletter or other publication which can be sold, or issued for free with the goal of generating advisory service sales.

Industry Marketing and Promotional Practices

To generate revenue, each sports advisory service utilizes some form of marketing; the forms they use can be as wide-ranging as the number of operators. Some operators have developed private clientele through personal relationships, and may not advertise at all. Some advertise heavily in gaming-related publications or on sports-oriented radio stations. Some operators purchase air time on radio or television, and run infomercials. Handicappers are frequent guests on sports radio shows, especially in Nevada, and may use the forum to publicize their telephone number or website (personal communication, November 9, 2006).

The absence of any industry oversight allows for great latitude with regard to marketing; some observers have questioned certain promotional practices in the industry. Advertising phrases such as "20-star play", "guaranteed winner", and "game of the year" are common (personal communication, October 30, 2006). Industry slang includes the term "lock", referring to a sports bet whose outcome is (supposedly) virtually certain. In reference to handicapping services, Kurson (2003) cited scams, including giving out both sides of the same game to different clients, and aggressive sales tactics. Traxler (2004) described one service's claims of extraordinary winning percentages, as well as

forceful and frequent sales pitches. Reports of aggressive telemarketing efforts were echoed by one customer of a different service (personal communication, November 3, 2006). Another source corroborated the use of such 'boiler room' sales techniques by this particular firm (personal communication, November 17, 2006). One company ran a radio ad in Las Vegas which stated "this week, we have identified our college football underdog game of the year"; although the ad implied the selection was unique for the year, it ran for several consecutive weeks during the 2006 football season (personal communication, November 9, 2006). Still another company was rumored to have invented a fictional handicapper, who was advertised as being a statistics expert and a specialist in Ivy League sports (personal communication, 2006). Certainly, many services may attempt to operate without the use of questionable promotional practices. However, without regulatory oversight, consumers of these services seem to be left to operate under the concept of caveat emptor.

Accuracy of Selections
Beyond the various promotional practices mentioned above, another area of marketing focus for sports advisory services is the accuracy of selections, since consumers may judge the value of a particular service based on its ability to pick winners. One expert stated in a radio interview that he would want to see the lifetime win/loss record of anyone claiming to be an expert handicapper (personal observation, October 20, 2006). Various efforts to track handicapping records are made within the industry. Some services track their own plays and publish the win/loss records of their handicappers; for example, the website of the Sportsmemo group includes the results of all its handicappers for the previous 30-day period. Certain websites operate as monitoring services, and track the records of handicappers who participate on a voluntary basis; examples include the Sports Monitor of Oklahoma City, and the National Sports Monitor. Of course, there are some sports advisory services that make little mention of their previous records.

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Literature Review
Academic literature pertaining directly to sports advisory services is very limited in scope. However, a great deal of published academic research has covered sports betting markets in general. The topic has been of interest due to potential comparisons of betting market efficiency to larger and more complex financial markets. The literature review of betting markets reveals three recurring themes: the degree of efficiency in the betting market; the potential for profitable betting strategies; and, the differing contributions of market funds from sophisticated and unsophisticated sources. These three topics, along with a review of the popular literature about sports handicapping, are discussed further below.

Academic Literature Regarding the Effectiveness of Sports Handicappers
Previous academic research pertaining directly to the effectiveness of sports advisory services is somewhat limited. Durham (2003) studied point spread markets and included the impact of two expert handicappers (Jim Harmon and Jeff Sagarin) for the years 1991 to 1998. Durham noted winning percentage performance against the spread for the two handicappers as 50.00 and 45.66 percent, respectively. Thus, he concluded that the two handicappers were only random in their ability to select point spread winners.
Cantinotti, Ladouceur and Jaques (2004) studied hockey bettors in Canada. They screened participants to identify a set of 'experts'. They concluded that expert hockey bettors did not achieve better monetary gains than chance would predict. They suggested that "the information used by bettors, along with near-misses, reinforce an illusion of control, and the so-called skills of sports bettors are cognitive distortions." Essentially,

these two studies both strongly question the ability of so-called "expert handicappers."

Academic Literature Regarding Efficiency in Football Betting Markets

A variety of academic research has identified a high level of efficiency in football betting markets. Pankoff (1968) summarized that National Football League (NFL) betting seems to be an efficient economic market analogous to the stock market, and that systematic error patterns are not large enough to be profitable to bettors. The results were found to be consistent with the theory of efficient markets. Sauer, Brajer, Ferris and Marr (1988) found that the 1983 and 1984 NFL seasons were uniformly consistent with the efficient market hypothesis.

Gandar, Zuber, O'Brien and Russo (1988) reviewed the NFL betting market with a dual test of market rationality, from a statistical and economic standpoint, with mixed results. Although their economic tests suggested that certain technical betting strategies could be profitable, their statistical tests detected no significant bias in point spreads. Lacey (1990) also studied NFL betting during the 1984-1986 seasons; his results supported an efficient betting market, but identified only a few profitable betting strategies among the 15 that were tested.

Golec and Tamarkin (1991) reviewed both NFL and college football betting markets for efficiency. Some bias was detected with NFL bettors, who tended to underestimate the home field advantage and too often bet on favorites. Dare and McDonald (1996) asserted that the model used by Golec and Tamarkin created biases by not incorporating 'pick-em' games (i.e., contests without a clear favorite between the two teams), resulting in inappropriate findings of market inefficiency. Dare and McDonald (1996) found no evidence against market efficiency.

Gray and Gray (1997) examined the NFL betting market using a statistical test. They identified some possible profitable strategies for the sample period which failed to produce positive returns on an out-of-sample basis, and concluded that apparent long term inefficiencies may dissipate over time.

Dare and Holland (2004) reviewed previous studies on NFL betting market efficiency, and examined two specific betting strategies suggested by previous authors. They cited some appearance of a bias favoring home underdogs, but noted that the factor does not appear consistently from season to season. They noted no evidence of momentum-based inefficiency. On an overall basis, they were unable to reject the market efficiency hypothesis.

Sauer (2005) reflected on the state of betting market research and noted the continued reference to the efficient market hypothesis. He urged additional research into betting markets, but concluded that the efficient market hypothesis will remain a central theme. Boulier, Stekler and Amundson (2006) tested the efficiency of the NFL betting market for efficiency for the years 1994-2000. They found efficiency within the market, with no information beyond the point spread that would explain the outcome of games. On the whole, the articles discussed above suggest that sports betting markets display a great deal of inherent efficiency.

Academic Literature Suggesting Profitable Betting Opportunities

Some researchers have suggested that the football betting market may not be fully efficient, and have suggested that some profitable betting opportunities may exist. In many cases, such findings were directly challenged by subsequent research, or qualified by the authors themselves. Vergin and Scriabin (1978) concluded that discernible, biased patterns exist in the setting of point spreads. Furthermore, such patterns appear to be of sufficient magnitude to allow the development of profitable betting strategies, which were identified as the heavy underdog, turnaround team, and strongest team strategies. However, the findings of the Vergin and Scriabin article were tested by Tryfos, Casey, Cook, Leger and Pylypiak (1984), who could not support the wisdom of betting based on previous patterns. They noted that only 3 of the 70 strategies suggested could be called profitable.

Furthermore, the three strategies would require a syndicate to be feasible, meaning that profit could only be achieved by exploiting differences in point spreads among different sports books.

Zuber, Gandar and Bowers (1985) suggested that speculative inefficiencies exist in the National Football League (NFL) betting market, and offered a possible betting strategy based on predicted point spreads which may produce profitable returns. However, the findings of the article were directly challenged by Sauer, Brajer, Ferris and Marr (1988), who concluded that a betting strategy based on the supposed inefficiency were shown to experience substantial losses when extended out of the sample.

Lacey (1990) reviewed NFL betting over the 1984 through 1986 seasons. The results supported an efficient betting market, although three profitable strategies were identified. These included: (i) betting against teams which covered or failed to cover the previous two weeks; (ii) betting on teams with the lowest average loss margins and betting against teams with the highest average loss margins; and, (iii) betting against teams that won games by more than 20 points in the previous week. However, Lacey noted that the presence of three profitable betting strategies out of fifteen tested may itself be a result of random factors over the sample period, with no guarantee of future predictability.

Golec and Tamarkin (1991) reviewed both NFL and college football betting markets for efficiency. Some bias was detected with NFL bettors, who tended to underestimate the home field advantage and too often bet on favorites. However, these findings were challenged by Dare and MacDonald (1996), who asserted that the model used by Golec and Tamarkin created biases by not incorporating 'pick-em' games, resulting in inappropriate findings of market inefficiency, although a bias for home teams in 'pick-em' games may be possible. Sauer (1998) noted a phenomenon in the previous studies which identified potentially profitable wagering strategies: that is, sightings of profitable wagering rules are occasionally reported, but often disappear on subsequent investigation.

Vergin and Sosik (1999) examined home field advantage in NFL football from 1981 through 1996. They asserted that betting on home teams for prominent games (such as Monday night and playoff games) represented a profitable betting strategy. However, they cautioned that earlier strategies published by one set of researchers had been shown to be unsuccessful by subsequent researchers, and that market adjustments could eliminate apparent winning strategies.

Paul, Weinbach and Weinbach (2003) examined college football betting markets for efficiency over a 25 year period (from 1976-2000). They found some inefficiency related to betting on underdogs, and asserted that betting on underdogs of more than 28 points represented a profitable betting strategy. Paul and Weinbach (2005) examined the college football and arena football totals markets, and asserted that over bets are favored by the public, resulting in possible profitable betting strategies on under bets. Although many of them were challenged by other researchers, the number of articles suggesting that profitable betting opportunities exist indicates some possible market inefficiency that may allow for certain profitable betting strategies.

Academic Literature Regarding Market Participants and Separate Pools of Funds

Many of the previously cited articles suggest that some market inefficiency may result from the existence of separate types of participants, or separate pools of funds. Regarding their economic test of the NFL betting market, Gandar, Zuber, O'Brien and Russo (1988) suggested that the pool of funds bet by the unsophisticated public is dominant to the pool from knowledgeable bettors, and that certain technical betting strategies could be decidedly profitable. In his 1990 study of NFL betting, which identified three potentially profitable betting strategies, Lacey noted that the efficiency in the betting market does not in itself imply complete accuracy of point spreads; the market could allow for certain unprofitable strategies to be balanced by profitable strategies. The Golec and Tamarkin (1991) study suggested a difference between the proportion of

unsophisticated gambler funds and professional gambler funds. The article stated that 70 percent of NFL wagering comes from unsophisticated gamblers, as opposed to 50 percent in college football betting. Paul, Weinbach and Weinbach (2003) asserted that some inefficiency may be due to the greater presence of uninformed bettors in the college football point spread market, due to restrictions on betting limits by sports books, which inhibit the participation of informed bettors.

Dare, Gandar, Zuber and Pavlik (2005) concluded that line moves in college football are the result of truly private information among a limited number of bettors. Similar to the results of the 2003 study, Paul and Weinbach (2005) concluded that inefficiencies in the college and arena football totals markets may be due to limits placed on informed bettors, which allows for uninformed bettors to dominate the market. These articles clearly argue for the activity of separate types of participants within the football betting market.

Popular Literature Regarding Sports Handicapping Services

The popular media tend to express some doubt toward the effectiveness of sports advisory services. Kurson (2003) stated flatly: "they don't work," citing a general failure to provide real handicapping services. In an example of media skepticism, Kim and Mravic (2001) conducted a small-scale experiment for *Sports Illustrated* covering one week of NFL action. They compared the selections of one service handicapper to picks made by four other individuals: a telephone psychic; a four-year-old boy; a sea lion; and, Mark Cuban (owner of the Dallas Mavericks professional basketball team). In this article, the handicapper recorded 6 wins and 8 losses, with better records posted by the sea lion and Mark Cuban.

Kurson (2003) also made the assertion that truly expert handicappers would simply make wagers with their selections, rather than sell their picks to the public. This line of reasoning is not uncommon. One expert stated that he is somewhat skeptical of handicappers who do not "step to the window" to back their opinions with their own funds (personal communication, 2006). Similarly, a professional sports gambler (Fezzik, 2006) wrote: "Many sports service handicappers bet little to nothing on their selections, and I don't respect them for it". The frequency of comparisons between handicapper ability and professional gambler ability warrants some further analysis of the latter segment of the sports betting market.

The Activity of Professional Gamblers

In the sports betting community, there are handicappers and gamblers who earn money through wagering rather than through sports advisory channels. The portion of the sports betting market consisting of true professional gamblers is unclear. One expert estimated that, at most, five percent of market participants actually earn positive returns, through skilled use of information and collaboration with other gamblers (personal communication, November 9, 2006). Bustillo (2006) profiled the famous Las Vegas gambler Steve Fezzik, who employs knowledge of statistics to exploit perceived market imbalances, changes in point spreads, and arbitrage betting opportunities. Fezzik bets his own personal funds, and also functions within a group of knowledgeable investors who pool resources. During football season, this group of gamblers and handicappers meets weekly to discuss upcoming games and potentially profitable betting opportunities (personal communication, November 17, 2006). These two comments lend support to the previous academic findings that certain activity in the betting market is the result of information used among a limited number of participants (Dare, Gandar, Zuber & Pavlik, 2005).

Bustillo (2006) estimated that Fezzik may wager an average of $60,000 per day, although Fezzik himself indicated that this estimate may be somewhat high (personal communication, November 17, 2006). Nevertheless, such information may indicate that a small portion of knowledgeable market participants may account for a significant proportion of wagering activity in dollar terms. This correlates to academic observations that activity in the betting market includes separate pools of funds, those from knowledgeable bettors and those from the unsophisticated public (Golec and Tamarkin, 1991).

Literature Review Summary

In summary, the literature pertaining directly to sports advisory services is limited, but both academic and popular sources tend to discount the ability of sports handicappers to outperform the market. Numerous articles tested the efficiency in the football betting market, with many concluding that efficiency does exist. Several studies offered potentially profitable betting strategies, although many of these strategies were directly challenged by subsequent academic research. These findings suggest a balance of opinions between those who portray an efficient market, and those who suggest that certain inefficiencies and profitable betting strategies may exist. Thus, there is support for the presence of an efficient market in football betting, but there is also the possibility that certain profitable betting strategies may exist. In addition, knowledgeable participants (i.e., true handicapping 'experts') are deemed to exist in the sports betting market. News accounts have documented the activity of these professional gamblers, who seem to comprise a portion of this knowledgeable market. The extent to which service handicappers, or their clients, also participate in the knowledgeable market is unclear. Similarly, the actual handicapping ability of these sports advisory services is unknown.

The overview of sports advisory services indicated two factors that characterize the industry: the lack of barriers to entry; and, the absence of regulatory oversight. The situation seems to have resulted in the presence of a large number of operators, many of whom resort to the use of questionable promotional practices in their quest to drive revenue. News accounts and other sources have documented the activity of professional gamblers in the sports betting market. This information would correspond to academic suggestions that the activity in the football betting market may consist of separate pools of funds: unprofitable funds from unsophisticated sources; and profitable funds from sophisticated individuals. The extent to which either pool includes the activity of sports advisory services is unclear from the qualitative data. Next, the paper will review the methodology that was used in this study to perform a quantitative analysis of the ability of sports advisory services to accurately predict outcomes of football games.

Quantitative Methodology

This paper uses secondary data sources for the quantitative review of sports advisory service effectiveness. The sources include a large data set (Data Set 1) from a sports monitoring service, as well as three additional data sets (Data Sets 2 through 4) selected on a convenience sampling basis. All data were tabulated on Microsoft Excel spreadsheet software. For three of the four tests, data were copied directly from source websites, in order to accommodate the volume of data and to reduce the possibility of error from manual input. Spreadsheet totals were checked to verify correspondence to total figures included with the source data. One test (Data Set 3) included manual entry of results into the spreadsheet, and the results were cross-checked back to the printed results to ensure accuracy. All four datasets are available from the authors of this study, but have not been included in this paper due to space limitations.

The literature review of sports betting markets included several references to the activity of knowledgeable bettors, or professional gamblers. To assess this factor, this paper utilizes results from one source (Data Set 4) where the selections of two professional gamblers were made public. Because readily accessible data regarding the activity of professional gamblers is limited (since this information tends to be closely held by such individuals), the data set was selected on a convenience sampling basis and is relatively small. Nevertheless, the results offer a comparison of professional gambler ability to sports advisory service handicapper activity.

Data Set 1

The most significant source of data in this paper includes records from the National Sports Monitor (NSM), an Internet service which tracks the win/loss performance of sports advisory services. Service handicappers participate on a voluntary basis, but must agree to several rules governing the monitoring process. The site utilizes several safeguards to increase the likelihood of accurate tracking:

- once a service signs up for monitoring and submits selections, the results cannot be removed;
- sports advisory services are instructed to submit picks throughout a particular season; to prevent services from being highly ranked based on a small number of early season selections, services are ranked based on units of profit rather than basic win/loss percentage;
- the point spread assigned to any selection is based on the current market line at the time the selection is submitted; and,
- all selections are made available on the web site 10 minutes after each game has started, to allow for independent monitoring of plays, and to eliminate the possibility of selections being altered on an after-the-fact basis.

The data from the NSM includes NFL and college football selections for the period of August 2002 through October 23, 2006, and includes over 128,000 selections.

Data Set 2

This dataset reviews statistical winning percentages by a sample of handicappers who participated in the 2006 *Leroy's Invitational* radio contest. The contest is sponsored by American Wagering Inc. (AWI), a publicly traded company that operates the Leroy's chain of sports books in Nevada. The program's host stated that AWI has no direct involvement in any sports advisory service; their sponsorship is simply to stimulate interest in sports betting and increase awareness of the Leroy's brand (personal communication, October 30, 2006).

This contest was conducted on a weekly basis throughout the football season. Participants include sixteen service handicappers. Each week, two handicappers each made seven football selections for the upcoming weekend, with the winner moving on to a subsequent round. Each selection was given a weight ranging from 1 to 7 units; the data in this paper is evaluated on both a raw and weighted basis. Selections were graded based on the point spread or total in effect at Leroy's when selections were submitted, the evening of the contest. The data set examined in this paper includes the opening round selections from the sixteen handicappers, for a total of 112 selections.

Data Set 3

The third data set includes statistical winning percentages by a sample of eleven handicappers, whose records were listed on the website of the sports advisory service SportsMemo.com. The data set includes a total of 572 selections, from September 21 through October 30, 2006. A limited number of the selections were weighted as "2 unit" plays; the data in this paper are evaluated on both a raw and weighted basis.

Due to the nature of the source, the data are subject to certain limitations. The advisory service includes the selections of separate handicappers, who may issue opposing selections for the same game. For some of these opposing selections, it was noted that the listed point spread differed between the favorite and the underdog. In certain cases, the spread used as the basis for measurement had a positive effect on the overall outcome tabulated for the handicappers. For example, for the Notre Dame at Michigan State game on September 23, 2006, the Notre Dame selections were listed with a point spread of -2.5, while the Michigan State selections were listed as +3. Since Notre Dame won the game by 3 points, the Notre Dame selections were listed as winners while the Michigan State selections were listed as pushes. Because the service encourages clients to "shop" for the best lines, this practice may correspond to the outcome available for bettors. However, this factor may slightly skew the numerical results by slightly increasing the calculated winning percentage. For the purposes of this paper, the data set was evaluated on an "as is" basis, according to the results published by the service.

Data Set 4

The final data set does not pertain to sports advisory services, but rather involves statistical winning percentages by two professional gamblers (Nick Bogdanovich and Steve Fezzik), who participated in a *'Beat Bogdanovich'* radio promotion. The contest required an entry fee of $25,000 from each participant, with the winner receiving the total of $50,000 in a winner-take-all format. For purposes of this paper, the entry fee requirement may have provided an incentive to simulate the demand for personal wagering performance required of professional bettors. The format of the contest required each contestant to make six selections per week throughout the 2006 football season. Selections were weighted equally, and graded based on the point spread or total which was in effect at Leroy's when selections were submitted, the day of the contest. The data set includes a total of 144 selections.

Results of Quantitative Analysis

The results of the quantitative analysis of the data used in this study will be discussed according to each individual data set, beginning with the first data set.

Data Set 1

The National Sports Monitor listed results of 128,980 service handicapper selections for the period of August 2002 through October 23, 2006. The results are summarized in Table 1. The selections resulted in an aggregate winning percentage of 50.39. For the entire period, the accuracy of handicappers was similar for NFL selections (50.50 percent) and college football selections (50.31 percent). No full season, in either NFL or college football, met the 52.4 percent threshold of accuracy required for profitable betting.

Table 1. Summary of Handicapper Results from the National Sports Monitor

Season	Number of Handicappers	Number of Selections	Wins	Losses	Win %
		NFL Selections			
2006	80	2,880	1,427	1,453	49.55%
2005	128	11,314	5,645	5,669	49.89%
2004	159	16,493	8,273	8,220	50.16%
2003	134	13,524	6,828	6,696	50.49%
2002	123	11,595	6,011	5,584	51.84%
Subtotal		55,806	28,184	27,622	50.50%
		College Football Selections			
2006	73	4,514	2,334	2,180	51.71%
2005	114	12,738	6,561	6,177	51.51%
2004	152	18,850	9,359	9,491	49.65%
2003	126	16,926	8,484	8,442	50.12%
2002	87	20,146	10,075	10,071	50.01%
Subtotal		73,174	36,813	36,361	50.31%
		Combined Selections			
2006		7,394	3,761	3,633	50.87%
2005		24,052	12,206	11,846	50.75%
2004		35,343	17,632	17,711	49.89%
2003		30,450	15,312	15,138	50.29%
2002		31,741	16,086	15,655	50.68%
Grand Total		128,980	64,997	63,983	50.39%

Data Set 2

The selections of service handicappers from the first round of the 2006 *Leroy's Invitational* are summarized in Table 2. The radio contest yielded a total of 112 selections; the aggregate winning percentage was 46.73. The contest also incorporated a unit differential, where each handicapper ranked their seven selections over a range of 1 to 7 units. When the results were modified to incorporate the unit differential, the weighted-average results yielded a winning percentage of 49.42. Neither winning percentage met the threshold for profitable betting.

Table 2. Summary of Results from Leroy's Invitational Handicapping Contest, Opening Round

Weekend	Handicapper	Selections	Raw Results				Weighted Results		
			Won	Lost	Push	Win %	Won	Lost	Win %
9/10/2006	Al McMordie	7	1	6	0	14.3%	2	26	7.1%
9/10/2006	Bryan Leonard	7	2	5	0	28.6%	6	22	21.4%
9/16/2006	Steve McLaughlin	7	2	5	0	28.6%	8	20	28.6%
9/16/2006	Marc Lawrence	7	3	3	1	50.0%	15	11	57.7%
9/23/2006	Ken Weitzner	7	4	3	0	57.1%	19	9	67.9%
9/23/2006	"Sooner" Adam	7	5	2	0	71.4%	21	7	75.0%
10/1/2006	Tony Ricci	7	3	4	0	42.9%	13	15	46.4%
10/1/2006	Andy Iskoe	7	2	4	1	33.3%	13	12	52.0%
10/8/2006	"Krackman"	7	4	3	0	57.1%	22	6	78.6%
10/8/2006	Stephen Nover	7	4	2	1	66.7%	19	4	82.6%
10/15/2006	"Doc"	7	4	3	0	57.1%	18	10	64.3%
10/15/2006	Wayne Peters	7	3	4	0	42.9%	8	20	28.6%
10/22/2006	Jorge Gonzalez	7	3	4	0	42.9%	8	20	28.6%
10/22/2006	Erin Ryunning	7	2	4	1	33.3%	7	16	30.4%
10/29/2006	Alf Musketta	7	4	3	0	57.1%	19	9	67.9%
10/29/2006	Paul Sonner	7	4	2	1	66.7%	15	11	57.7%
	Totals	112	50	57	5	46.73%	213	218	49.42%

Notes: Raw results grade all selections as 1 unit plays; weighted results include selections rated by each handicapper, from 1 to 7 units; pushes are ignored in calculating the winning percentage.

Data Set 3

A total of 572 handicapping selections were obtained from the sports advisory service Sportsmemo.com, for the period of September 21 through October 30, 2006. The results are summarized in Table 3. The aggregate winning percentage for these selections was 51.82, assuming equal units wagered on every contest. The site also listed certain of the posted selections as "2 unit" plays. When the results were modified to incorporate the unit differential, the weighted-average winning percentage was 51.20. Neither winning percentage met the threshold for profitable wagering.

Table 3. Summary of Results from Sportsmemo.com, September 21, 2006 through October 30, 2006

Handicapper	Selections	Raw Results				Weighted Results		
		Wins	Losses	Pushes	Win %	Wins	Losses	Win %
A	41	26	14	1	65.00%	30	19	61.22%
B	55	22	30	3	42.31%	24	32	42.86%
C	64	22	40	2	35.48%	26	48	35.14%
D	39	24	15	0	61.54%	33	19	63.46%
E	74	40	30	4	57.14%	46	35	56.79%
F	42	18	21	3	46.15%	20	27	42.55%
G	62	33	25	4	56.90%	35	29	54.69%

H	65	33	29	3	53.23%	37	35	51.39%
I	50	25	25	0	50.00%	26	26	50.00%
J	38	18	17	3	51.43%	19	17	52.78%
K	42	23	18	1	56.10%	25	19	56.82%
Totals	572	284	264	24	51.82%	321	306	51.20%

Notes: Raw results grade all selections as 1 unit plays; weighted results grade plays as 1 or 2 units, as designated by the website; pushes are ignored in the calculation of winning percentage.

Data Set 4

A total of 144 selections were obtained from the 2006 *Beat Bogdanovich* radio contest, summarized in Table 4. The aggregate results for the two professional gamblers yielded a winning percentage of 62.96. Bogdanovich posted an overall accuracy of 61.43 percent, while Fezzik posted results of 64.62 percent. The performance of each gambler, and both gamblers combined, exceeded the threshold for profitable wagering. This was the only one of the four cases (datasets) examined in which the profitability threshold was exceeded.

Table 4. Summary of Results from the Beat Bogdanovich Professional Gambler Contest

Week	Selections	Wins	Losses	Pushes	Win %
		Steve Fezzik			
9/10/2006	6	2	4	0	33.33%
9/17/2006	6	5	0	1	100.00%
9/24/2006	6	4	1	1	80.00%
10/1/2006	6	5	0	1	100.00%
10/8/2006	6	1	2	3	33.33%
10/15/2006	6	4	2	0	66.67%
10/22/2006	6	4	2	0	66.67%
10/29/2006	6	3	3	0	50.00%
11/4/2006	6	4	2	0	66.67%
11/11/2006	6	4	1	1	80.00%
11/18/2006	6	4	2	0	66.67%
11/25/2006	6	2	4	0	33.33%
Subtotal	72	42	23	7	64.62%
		Nick Bogdanovich			
9/24/2006	6	3	3	0	50.00%
9/17/2006	6	5	0	1	100.00%
9/24/2006	6	4	2	0	66.67%
10/1/2006	6	5	1	0	83.33%
10/8/2006	6	1	4	1	20.00%
10/15/2006	6	3	3	0	50.00%
10/22/2006	6	3	3	0	50.00%
10/29/2006	6	3	3	0	50.00%
11/4/2006	6	5	1	0	83.33%
11/11/2006	6	4	2	0	66.67%
11/18/2006	6	5	1	0	83.33%
11/25/2006	6	2	4	0	33.33%
Subtotal	72	43	27	2	61.43%
		Combined Results			
Grand Total	144	85	50	9	62.96%

Conclusions and Limitations from Quantitative Data Review

Three sets of secondary data were used to evaluate the effectiveness of sports service handicappers, and none of them exceeded the threshold for profitable wagering. The aggregate result of 50.39 percent from the large sample in this study is much closer to a random result than it is to the breakeven threshold (52.4 percent). The results from the two convenience samples of service handicappers (46.73 and 51.82 percent) correlate with the results from the larger data set. These findings also provide further support for the perspective in the literature, that the football betting market is very efficient, and that it is difficult for any betting system to overcome the house advantage and the inherent efficiency of the football betting market.

Some academic research has asserted that the overall efficiency in the market may be the result of a balance between the pool of funds from unprofitable bettors, and the pool of funds from profitable bettors. Although the sample size is relatively small, it i., interesting to note that the winning percentages posted by the two professional gamblers reviewed in this study (64.62 and 61.43 percent) both exceeded the threshold for profitable wagering. On the whole, the results from the four samples indicate that professional gamblers may play a role in the so-called profitable pool, while sports advisory service handicappers may not. This finding is consistent with the general perspective of the key industry participants who were interviewed for this study.

Several limitations of the data analysis in this study must be noted. The results from the overall sample of sports advisory service handicappers do not necessarily apply to every *individual* handicapper. Academic research suggests that certain betting strategies have been shown to be profitable, at least over limited periods of time. While the profitability of individual betting strategies tends to dissipate over time, it may be possible for a skilled individual handicapper to "stay ahead of the curve" and take advantage of newly profitable strategies as they emerge. The interview subjects for this paper cited a few specific service handicappers whose opinions are valued, and who are perceived as being able to outperform the market. For example, the weekly information forum of professional gamblers includes the participation of at least one active service handicapper (personal communication, November 17, 2006). The data and the academic research both leave open the possibility that a very skilled handicapper may be able to overcome the efficiency in the market. However, it may be unlikely that an average consumer of sports advisory services could similarly distinguish the truly capable performers out of the general population of all such services, which apparently produce only random results.

Further, the conclusions which can be drawn solely from the convenience sample of professional gamblers (Data Set 4) are limited. The presence of only one sample precludes comparisons to other professional gambler data sets. Additionally, the 62.96 percent results from the particular contest were exceptional, even according to the standards of the participants. One expert handicapper advises that a professional gambler would be satisfied by consistently winning 54 percent of personal selections, and might expect contest results, which allow for greater selectivity, to yield from 55 to 60 percent (personal communication, November 17, 2006). Despite these factors, the conclusions drawn from the sample size of 144 selections may still provide relevance for a comparison with the records of sports service handicappers, in view of the qualitative data regarding professional gambler activity that was noted in this study.

Recommendations for Future Research

Much of the quantitative data in this study summarizes the results from groups of service handicappers. Although the overall results tend to drift toward the random selection benchmark of 50 percent, the results do not rule out the possibility for certain individual handicappers to outperform the betting market. Additional evaluation of the large data samples in this study may detect certain handicappers who consistently over-perform or under-perform. Such information may be valuable as information

to consumers, or may expand on the concept regarding separate pools of funds from knowledgeable and unknowledgeable market participants.

It would also be beneficial to understand the extent to which consumers actually use sports advisory services, and the reasons for their use. Personal interviews, questionnaires, or other research methods may provide insight into the use of these services from the consumer perspective. Such research may also provide insight which crosses over with other research topics, including the psychology of gambling. For example, an expert handicapper (personal communication, November 9, 2006) advised that the consumer motivation for the purchase of these services is driven not by logic, but by greed. Unfortunately, data regarding consumer use of services may be difficult to obtain, as any service may be reluctant to share customer information with a researcher.

Finally, many comparisons could be made between sports betting markets and financial markets. Studies have shown that mutual fund managers in financial markets often produce returns no greater than the overall market, as measured by market indices. As such, it may be possible to correlate the ability of "experts" in sports betting (sports service handicappers) to the ability of experts in financial markets (stock brokers or mutual fund managers).

Conclusion

The results of this study offer several important insights. Both academic research and the quantitative data reviewed in this study suggest that the overall sports betting market is quite efficient, and opportunities for profitable betting are limited. Despite these factors, essentially anyone can call themselves an "expert" handicapper and enter the sports advisory service industry. The situation seems to have resulted in the presence of a large number of sports advisory services, which are relatively random in their ability to provide winning selections.

The possibility does exist for a skilled participant to outperform the market. However, the information reviewed in this paper suggests that the skilled individuals who participate in the football betting market are professional gamblers, and not the sports advisory service handicappers. The focus of the sports advisory service industry seems to be as much (or more) on its own marketing initiatives to build a revenue stream, and not on the needs of its consumers, who desire winning selections.

These findings have definite implications for potential consumers of sports advisory services. The random choice of a sports advisory service by a bettor would also likely result in random betting results. In order to avoid this outcome, this paper suggests that the most important factor for finding a qualified advisor may be the participation of that individual as an active professional gambler. Otherwise, the overall results of quantitative testing indicate that sports advisory service selections for football certainly do not meet the threshold for profitable wagering, and are similar to the results which could be expected from the mere flip of a coin.

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