



# *Is Wagering on the Highest Paid College Football Coaches a Good Bet?*

**By Joseph A. Farinella and Clay M. Moffett**



Peer Reviewed



*Joseph. Farinella is an Associate Professor of Finance at the University of North Carolina Wilmington. Dr. Farinella teaches classes at the graduate and undergraduate level in the areas of Investments and Corporate Finance. He is a Chartered Financial Analyst (CFA) and does consulting on various financial issues. His research interest are in the areas of market efficiency, investments and pedagogy. Contact: farinellaj@uncw.edu*



*Clay Moffett is an Associate Professor of Finance at the University of North Carolina Wilmington. He currently serves as the Director of the International Masters of Business Administration at UNCW. Dr. Moffett teaches courses at the graduate and undergraduate level on Investments, Corporate Finance and Derivatives. His main areas of research include the synthetic replication of shorted securities, market microstructure and portfolio theory.*

## **Abstract**

The top college football coaches are paid millions of dollars annually because they have proven that they can win games and championships. This paper examines if wagering on the highest paid college football coaches is a good bet. Specifically, we examine the profitability of wagering on the teams being coached by the fifteen highest paid college football coaches over the past ten years. The results show that betting on teams coached by these individuals would have resulted in a 53.95% winning percentage. We reject the hypothesis that this is a fair bet. These results are driven by four superstar coaches who beat the wagering line a high percentage of the time. The sport wagering market efficiently priced wagers on 11 of the 15 coaches over the ten-year period. We find that the efficiency in the sport wagering market improved after five years. The rationale is that after five years the markets have more information about these coaches and adjust the new lines so they will be fair bets. We also examine the total points scored wager and no profitable beating strategy is identified in this market.

## Introduction

Nobody loves a good wager like a sports fan. It is a widespread phenomenon, widely debated and a widely researched topic. The size of the 'handle' or total value of bets made, is impossible to accurately estimate due to the illegality of much of the activity. As pointed out by Farinella and Moffett (2013) a 1999 study by the National Gambling Impact Study Commission estimates there are from \$80 billion to \$380 billion in illegal wagers alone in the US. Mr. Vic Salerno, CEO of American Wagering, estimates that between \$50 billion and \$250 billion are wagered on sports each year. By any estimate, gambling is a huge business in the US and a widely practiced recreational activity.

Wagering is a process whereby a sportsbook (offering the bet) sets lines on sporting event to balance the wagering on each participant in the event. If the bets are equal then the sportsbook will have a guaranteed profit of 10% because the losers must pay 110% of their wager. This is akin to a securities market maker setting the prices for the bid and ask and seeking to keep a neutral portfolio earning his living from the bid/ask spread. There is some evidence that sportsbooks may not necessarily seek an equal distribution, but prefer to take a position on the outcome (Paul and Weinbach, 2005).

Understanding the point spread betting market is quite simple. Assume that the betting line on an upcoming game between Alabama and Florida is Alabama minus 5. This means that Alabama is favored to win by five points, and a bet on Alabama pays out if Alabama wins by more than 5 points. Conversely, a bet on Florida pays out if Florida wins or if Florida loses by less than 5 points. If Alabama wins by exactly 5 points, the game is considered a "push," and money bet on the line is refunded.

Another popular bet is to gamble on the total points scored in a game. The bettor chooses whether he believes the total scored by both teams will be above (over) or below (under) a number that is set by the sportsbook. Several studies examining this bet found that bettors prefer the over and the total line is therefore biased. The rationale is that bettors prefer to watch games with more offense. They have a preference to watch high scoring games thus there is a bias to bet the over. The bettor thus receives some consumption value and utility from betting on a game and rooting for a high scoring contest. The average fan does not enjoy defensive struggles in football when both teams are punting and the score is low.

Sport Wagering is traditionally wagered 11 for 10, meaning that a bettor must wager 11 dollars to make ten; that is, someone who bets \$110 and wins will walk home with \$210: the \$110 he or she wagered plus the \$100 in winnings. Therefore, bettors must win 52.4 percent of their bets to break-even. The break-even winning percentage ( $p$ ) can be calculated as follows:  $p + (1-p)(-1.1) = 0$  which implies  $p = 1.1/2.1 = 0.524$ . The eleven for ten bet is designed to provide the bookmakers with a 10 percent commission on each bet placed, which is frequently referred to as the vigorish or juice.

Once a betting line is posted, betting begins in Las Vegas; then across the country and on gambling websites. As bets begin to roll in, the betting line may move. New information, such as player injuries will change the betting line leading up to the start of the game. Irrational

betting trends also will affect the line after it has been announced, as bettors react to movements in the betting line, rather than information about the matchup. Once the game begins all betting is stopped, and the current spread is known as the closed line.

There have been many studies that have identified biases in the sports wagering market. Numerous studies show that betting the under is a profitable strategy in various sports: the National football league (Paul and Weinbach, 2002), the National Basketball Association (Paul and Weinbach and Wilson, 2004), European soccer (Paul and Weinbach, 2009), Arena football and College football (Paul and Weinbach, 2005). Another study found betting the under in College football is even more profitable for televised games (Paul and Weinbach 2013). This behavioral bias could cause the over to be over-bet and the line to be biased. (Farinella and Moffett, 2013) find that this bias can be exploited and are able to identify a betting strategy that is profitable. The betting strategy of betting the under on Mississippi State and Vanderbilt won 57.95% and 58.82%, respectively.

Previously numerous factors such as quality of teams, television coverage by network, day of the week, time of day, month of the season, and the league the teams play in, have all been researched. To date, no research has considered the effect of the head coach--often the person with the highest profile and highest paid pay at the event.

The highest paid coaches earn millions because they win games. Does superior performance on the field translate to superior performance against the betting lines being set by the sports wagering market? There has been clear evidence that sports bettors have a strong preference for the favorite and over-bet across sports (Woodland and Woodland, 1994, 2001). We test if there is a bias in regard to the performance of the highest paid coaches versus the wagering lines established by the book maker. We test the hypothesis that wagering on the highest paid college football coaches is a fair bet. It is possible that the public overestimates these coaches' abilities and the betting lines are inflated. In this case, a strategy of betting against the highest paid coaches would be profitable. Alternatively, it is possible that these coaches outperform the market's perception of their skill; then a strategy of betting for the highest paid coaches would be profitable. If neither of these two strategies is profitable, then the market would be efficient and the sports wagering market would accurately assess these coaches' skills.

## **Literature Review**

The efficiency of the sports wagering market has been examined for decades and several biases have been identified. The notion of a traditional model of sportsbook behavior was discussed by Pankoff (1968) and Gandar et al. (1988). They detail how the sportsbook sets lines so ideally there are equal amounts bet on each side of the wager. This allows the sportsbook to eliminate risk and lock in a 10% profit (the vig) with the profit based solely on the volume of bets. If the unsophisticated bettor had a preference for the over then the line would increase until the volume of bets was equal. This would result in a total number that is biased upward and a profitable strategy of betting the under.

Levitt (2004) extended this concept and sought to provide an alternative model of sportsbook behavior. He argued that sportsbooks do not necessarily need to balance the books but rather prefer to maximize profits. In this model a sportsbook would seek to profit on betting inefficiencies by the general public. The sportsbook is considered the most knowledgeable participant in the market and knows the 'real' fair line as well as any over or under betting which would distort the 'nominal' line. If the public has a tendency to bet more heavily on the over then the sportsbook would not adjust the line to balance the volume on each side. This allows the volume to be higher on the overs, with the sportsbook having confidence that the betting public is consistently wrong. The sportsbook would profit from effectively having a position on the under, presuming the bookies are both sophisticated and agents seeking to maximize profitability. Both of these models are consistent with the line being biased upward if the unsophisticated bettor has a preference for the over.

In finance, mispricing or market inefficiency disappears when there is an arbitrageur who exploits the mispricing and returns the market to efficiency. However, the sportsbook can make it difficult for the arbitrageur (sophisticated bettor) to exploit this mispricing by placing limits on the size of wagers. This is a common practice for most sportsbooks. For example, Pinnacle.com had limits of \$20,000 on totals bets in college football while other sites such as Sportsbook.com set limits of \$2,200 on totals for college football. The limits, logistics and transaction costs in this market could allow this mispricing to persist.

Woodland and Woodland (1994) find that the favorites in professional baseball are over-bet. However, this bias is not large enough to be profitable after adjusting for transactions costs. Paul and Weinbach (2005) examine betting the over/under bet in college football and Arena football and found both to be a fair bet. However, biases were found in a subsample of games. The results show that betting the under in both arena and college football games that had a total of 52 or more, 54 or more, and 58 or more points scored results in profitable betting strategies. Paul, Weinbach and Wilson (2004) examine the over/under bet in professional basketball. They reject the null hypothesis of a fair bet for NBA games where the total number is greater than 202, 204, 206, 207, and 208. Although the under bet wins more than 52.4% of the time, the null hypothesis of no profitability cannot be rejected. Farinella and Moffett (2013) find that betting the under in a subsample of southeastern conference college football games is a profitable strategy. The evidence is consistent in various sports and show that bettors prefer scoring; thus the total lines are biased upward.

Paul and Weinbach (2013) examine if the profitability of betting the under in college football games is impacted by the television coverage of the game. The authors maintain that the unsophisticated bettor who prefers the over, since they enjoy cheering for points, is more likely to bet games that they are able to watch on television. Accordingly, televised games are more likely to have total lines that are biased upwards. The results from their study support their hypothesis. Specifically, they find that betting the under would be profitable for games that were televised nationally. Betting the under wins 60% of the time for nationally televised games.

Vergin and Sosik (1999) find another profitable wagering strategy. They find that games receiving national exposure increases the home field advantage to a more significant extent

than expected by bettors. Several studies have shown that games with national exposure often can be attractive to the unsophisticated bettor and biased. The unsophisticated bettor is often interested in nationally televised games and also aware of the top college coaches. We extend this notion by examining if the national exposure given to the highest paid coaches results in biases in the sport wagering market. The highest paid coaches are considered the best, does the public over-bet these coaches or do these coaches performance continue to exceed the public's perception. In this paper, we examine the fifteen highest paid coaches and if the national exposure of these coaches biases the betting line over their career as a head coach and over the past 5 years.

**Table 1**  
**List of Highest Paid College Football Coaches in 2013**

<b>Coach</b>	<b>Seasons and Teams in Sample</b>	<b>Salary</b>
Nick Saban	2002 - 2004 LSU, 2007 - 2013 Alabama	\$5,476,738
Mack Brown	2004 - 2013, Texas	\$5,353,750
Bob Stoops	2004 - 2013, Oklahoma	\$4,550,000
Urban Meyers	2004 - 2005, Utah, 2005 - 2010 Florida, 2012 - 2013 Ohio State	\$4,300,000
Les Miles	2004 - 2005 Oklahoma State, 2005 - 2013 LSU	\$3,835,417
Kirk Ferentz	2004 - 2013 Iowa	\$3,835,000
Steve Spurrier	1990 - 2001 Florida, 2005 - 2013 USC	\$3,585,000
Gary Patterson	2004 - 2013 Texas Christian	\$3,467,926
Brady Hoke	2004 - 2008 Ball State, 2009 - 2010 SDSU, 2011 - 2013 Michigan	\$3,026,120
Mark Richt	2004 - 2013 Georgia	\$2,925,340
Gary Pinkel	2004 - 2013 Missouri	\$2,700,000
Paul Johnson	2004 - 2007 Navy, 2008 - 2013 Georgia Tech	\$2,440,700
Frank Beamer	2004 - 2013 Virginia Tech	\$2,343,000
Bill Snyder	2001 - 2005 Kansas State, 2009 - 2013 Kansas State	\$2,200,000
Tommy Tuberville	2003 - 2008 Auburn, 2010 - 2012 Texas Tech, 2012 - 2013 2013 Cincinnati	\$2,155,000

### Data

The data was collected from Covers ([www.covers.com](http://www.covers.com)), a sports betting site that provides historical information on sport wagering. The site provides the betting line, score of game, and over/under for regular season and bowl games. The sample is coaches who are among the top 30 in salary and have served as a head coach for 10 or more years. This is used to certify their 'reputation' in the coaching industry. By the end of 2013, there were 15 coaches that met these criteria with a combined 150 seasons of being a head coach and over and 1,937 observations/games. Table 1 above

shows the name of each coach in our sample, their salaries, and the years at a given college. In 2013, the highest paid head coach was Nick Saban who earned a salary of \$5,476,738 to coach football at the University of Alabama. The lowest paid coach on the list is Tommy Tuberville who earned \$2,155,000 to coach football at the University of Cincinnati in 2013.

## Methodology

Markets are considered efficient if an investor can't consistently earn abnormal returns. Similarly, the sports gambling market is considered to be efficient if there are no strategies that can consistently generate a profit. If the betting line is efficient, then the bet would win 50% of the time and lose 50% of the time with the market adjusting for factors which are known to affect the outcome. The casino or bookie would earn their profit by charging the losers the vig- a 10% fee. This results in a gambler having to on average wager \$11 to win \$10. Therefore, the bettor must win more than 52.4% of their bets in order make a profit and cover the fee.

An ordinary least squares regression was initially considered, but because the forecast errors were skewed, an alternative model is used. The Even and Noble's (1992) likelihood ratio test does not impose and equal mean and median on the forecast errors. This model allows us to test a betting strategy against the null hypothesis of a fair bet and no profitability. For an under bettor, the unrestricted log likelihood function assumes the form:

$$L^u = n [\ln (q) ] + (N - n) \ln (1-q) \tag{1}$$

Where N is the total number of observations, n is the number of observations where the score is less than the posted line and q is the observed proportion of observations where the score is less than the total posted by the casino. An efficient market implies that q = .5. This creates the restricted log likelihood function L', which is obtained by setting q = 0.5. The likelihood ratio statistic for the null hypothesis that q = 0.5 is:

$$2(L^u - L') = 2 \{n [\ln (q) - \ln (0.5)] + (N - n) [\ln (1-q) - \ln (0.5)]\} \tag{2}$$

To test for a profitability incorporating the 10% vig of the casino, the test changes to:

$$2(L^u - L') = 2 \{n [\ln (q) - \ln (0.524)] + (N - n) [\ln (1-q) - \ln (0.476)]\} \tag{3}$$

## Empirical Results

Table 2 below is provided shows the highest paid coaches and their records against the line for the previous ten seasons that they coached. Overall, betting on these coaches would result in a winning percentage of 53.95%. We reject the hypothesis that this is a fair bet at the 1% level but fail to reject that this strategy is profitable. The results show that several coaches have consistently beaten the line. They are led by Urban Meyer and Bill Snyder, who have a 61.79% and 58.82% winning percentage against the line. Brady Hoke and Nick Saban also beat the line 58.82% and 57.48%, respectively.

<b>Table 2</b>
<b>Betting Simulations on the Highest paid Coaches:</b>
<b>Won/Loss Against the Line: Ten Years of data</b>

	Won	Loss	Win Percentage	Log Likelihood Fair Bet	Log Likelihood Profitability
Nick Saban	73	54	0.5748	2.8532*	1.3311
Mack Brown	64	63	0.5039	0.0079	NA
Bob Stoops	70	60	0.5385	0.7700	NA
Urban Meyer	76	47	0.6179	6.9022***	4.4183**
Les Miles	61	66	0.4803	0.1969	NA
Brady Hoke	71	50	0.5868	3.6631*	1.9369
Kirk Ferentz	62	59	0.5124	0.0744	NA
Steve Spurrier	69	54	0.5610	1.8338	NA
Mark Richt	61	64	0.4880	0.0720	NA
Tommy Tuberville	59	61	0.4917	0.0333	NA
Gary Patterson	65	58	0.5285	0.3986	NA
Bill Snyder	70	49	0.5882	3.7254**	1.9946
Gary Pinkel	66	58	0.5323	0.5165	NA
Frank Beamer	70	59	0.5426	0.9391	NA
Paul Johnson	66	54	0.5500	1.2020	NA
Total	1003	856	0.5395	11.6400***	1.8480

Notes: Where a fair bet is not rejected or less than 50% then the test for no profitability is excluded and NA is reported in the table. The log likelihood test statistic has a chi-square distribution with one degree of freedom. Critical Values are 2.706 (for an  $\alpha = 0.10$ ), 3.841 (for  $\alpha = 0.05$ ), and 6.635 (for  $\alpha = 0.01$ ). \* indicates a significance at the 10 percent level of confidence, \*\* indicates significance at the 5 percent level and \*\*\* indicates significance at the 1 percent level.

The results from the log likelihood test show that we can reject the hypothesis that wagers on these four coaches are fair bets. The results from the log likelihood test also show that we reject the hypothesis that wagering on Urban Myers is not profitable.

Table 3 presented below provides the results from wagering on the highest paid coaches over a five-year period. The rationale is that after five years the bookmakers know that these coaches are good and they should have had ample opportunity to adjust the new lines.

Again, we examine the won/loss record against the line, with the null hypotheses of a fair bet and a profitable bet. Table 3 shows that the overall betting lines established by the casinos improved. The winning percentage of betting on the entire sample is 51.6% and is a fair bet. In this case only Bill Snyder statistically outperformed the line. Wagers on Bill Snyder provided a winning percentage of 62.90%. We reject the null hypothesis that this is a fair bet and reject the null hypothesis that this is not a profitable bet. Although Nick Saban, Urban Meyer, and Brad Hoke all had high winning percentage versus the line, 58.49%, 57.81%, and 57.14%, these results were not statistically significant. Interestingly, two other coaches consistently did worse than the line. Mack Brown and Tommy Tuberville were consistent 'losers' against the line, both at about 41%.

**Table 3**

<b>Betting Simulations on the Highest paid Coaches:</b>					
<b>Won/Loss Against the Line: Five Years of data</b>					
	<b>Won</b>	<b>Loss</b>	<b>Win Percentage</b>	<b>Log Likelihood Fair Bet</b>	<b>Log Likelihood Profitability</b>
Nick Saban	31	22	0.5849	1.5357	NA
Mack Brown	27	38	0.4154	1.8705	NA
Bob Stoops	34	31	0.5231	0.1385	NA
Urban Meyer	37	27	0.5781	1.5689	NA
Les Miles	31	34	0.4769	0.1385	NA
Brady Hoke	44	33	0.5714	1.5768	NA
Kirk Ferentz	32	31	0.5079	0.0159	NA
Steve Spurrier	36	31	0.5373	0.3735	NA
Mark Richt	35	33	0.5147	0.0588	NA
Tommy Tuberville	25	36	0.4098	1.9945	NA
Gary Patterson	30	34	0.4688	0.2502	NA
Bill Snyder	39	23	0.6290	4.1761**	2.7924*
Gary Pinkel	35	28	0.5556	0.7794	NA
Frank Beamer	31	35	0.4697	0.2426	NA
Paul Johnson	32	32	0.5000	0.0000	NA
Total	499	468	0.5160	0.9940	NA
Notes: Where a fair bet is not rejected or less than 50% then the test for no profitability is excluded and NA is reported in the table. The log likelihood test statistic has a chi-square distribution with one degree of freedom. Critical Values are 2.706 (for an $\alpha = 0.10$ ), 3.841 (for $\alpha = 0.05$ ), and 6.635 (for $\alpha = 0.01$ ). * indicates a significance at the 10 percent level of confidence, ** indicates significance at the 5 percent level and *** indicates significance at the 1 percent level.					

Next we test if the sports wagering market accurately assesses the highest paid coaches' ability to score points. Some coaches have a reputation as offensive or defensive specialists. This would imply that the total scoring of the games they were involved in were surprisingly higher or lower. The rationale is that these coaches are well known and there may be a bias to think they will score more points, thus the line would be biased upward and betting the under would be profitable. The results for wagering on the under for the past 10 years are shown below in Table 4.

Interestingly, both Snyder and Meyer were again at or near the top with regards to winning percentage – a bias of over betting on the over wager. But neither was significant enough to reject the null of a fair bet or profitability. Only one coach did, at statistically significant levels, reject the null hypothesis of a fair bet. However, betting the under in games coached by Frank Beamer would have only won 42.52% of the time. Wagering the under on the entire sample would result in a winning percentage of 50.5%. We cannot reject the hypothesis that this is a fair bet. This shows that in regards to the total wager for our sample the sports wagering market is efficient.

<b>Table 4</b>
<b>Betting the Under for Total Points Scored:</b>

<b>Ten Years of Data</b>					
	<b>Won</b>	<b>Loss</b>	<b>Win Percentage</b>	<b>Log Likelihood Fair Bet</b>	<b>Log Likelihood Profitability</b>
Nick Saban	57	65	0.4672	0.5250	NA
Mack Brown	64	61	0.5120	0.0720	NA
Bob Stoops	63	65	0.4922	0.0313	NA
Urban Meyer	67	57	0.5403	0.8073	NA
Les Miles	70	57	0.5512	1.3330	NA
Brady Hoke	59	61	0.4917	0.0333	NA
Kirk Ferentz	51	64	0.4435	1.4727	NA
Steve Spurrier	62	57	0.5210	0.2101	NA
Mark Richt	65	59	0.5242	0.2904	NA
Tommy Tuberville	59	59	0.5000	0.0000	NA
Gary Patterson	58	60	0.4915	0.0339	NA
Bill Snyder	63	47	0.5727	2.3355	NA
Gary Pinkel	63	61	0.5081	0.0323	NA
Frank Beamer	54	73	0.4252	2.8532*	NA
Paul Johnson	64	55	0.5378	0.6813	NA
<b>Total</b>	<b>919</b>	<b>901</b>	<b>0.5049</b>	<b>0.0547</b>	<b>NA</b>
Notes: Where a fair bet is not rejected or less than 50% then the test for no profitability is excluded and NA is reported in the table. The log likelihood test statistic has a chi-square distribution with one degree of freedom. Critical Values are 2.706 (for an $\alpha = 0.10$ ), 3.841 (for $\alpha = 0.05$ ), and 6.635 (for $\alpha = 0.01$ ). * indicates a significance at the 10 percent level of confidence, ** indicates significance at the 5 percent level and *** indicates significance at the 1 percent level.					

Finally, we examine if the betting of the under improved with the additional known history of the coaches' record by looking at the last 5 years of their head coaching careers. Again, we examine their won/loss record against the under based on the null hypotheses of a fair and a profitable wager. Table 5 below is presented below and shows, that the betting lines established by the casinos became even more efficient over time with no coaches beating the 'odds.'

In fact, the highest win percentage remained Urban Meyers, but the win percentage dropped to 55.38% while Mark Richt improved to 56.06%. The lowest were Beamer and Brown, both at approximately 43% though both came close. But none showed the ability to consistently reject the null or produce profitable results at the 10% level. The overall average remained near 50% against the line. Again, the fact that the sport wagering market improved the accuracy of predicting the highest paid coaches' ability to score points indicates that this market is efficient and as new information is provided to the market it incorporates the information and becomes even more efficient.

<b>Table 5</b>
<b>Betting the Under for Total Points Scored:</b>
<b>Five Years of Data</b>

	<b>Won</b>	<b>Loss</b>	<b>Win Percentage</b>	<b>Log Likelihood Fair Bet</b>	<b>Log Likelihood Profitability</b>
Nick Saban	26	24	0.5200	0.0800	NA
Mack Brown	28	37	0.4308	1.2502	NA
Bob Stoops	29	35	0.4531	0.5633	NA
Urban Meyer	36	29	0.5538	0.7553	NA
Les Miles	31	33	0.4844	0.0625	NA
Brady Hoke	36	41	0.4675	0.3249	NA
Kirk Ferentz	28	32	0.4667	0.2669	NA
Steve Spurrier	34	32	0.5152	0.0606	NA
Mark Richt	37	29	0.5606	0.9721	NA
Tommy Tuberville	33	28	0.5410	0.4103	NA
Gary Patterson	31	30	0.5082	0.0164	NA
Bill Snyder	33	29	0.5323	0.2582	NA
Gary Pinkel	30	34	0.4688	0.2502	NA
Frank Beamer	28	37	0.4308	1.2502	NA
Paul Johnson	34	30	0.5313	0.2502	NA
<b>Total</b>	<b>474</b>	<b>480</b>	<b>0.4969</b>	<b>0.0377</b>	<b>NA</b>
Notes: Where a fair bet is not rejected or less than 50% then the test for no profitability is excluded and NA is reported in the table. The log likelihood test statistic has a chi-square distribution with one degree of freedom. Critical Values are 2.706 (for an $\alpha = 0.10$ ), 3.841 (for $\alpha = 0.05$ ), and 6.635 (for $\alpha = 0.01$ ). * indicates a significance at the 10 percent level of confidence, ** indicates significance at the 5 percent level and *** indicates significance at the 1 percent level.					

## Conclusion

In this paper, we examine the efficiency of the sports wagering market. We identify the highest paid college football coaches as of 2013. These coaches have proven that they can win games and championships. We test if the highest paid college football coaches were a good bet. Specifically, would a bettor who wagered on these coaches over a 10 year and five-year period have made a profit. We find that over a ten-year period wagering on these coaches would provide a winning percentage of 53.95%. Using the log likelihood test we reject the hypothesis that this is a fair bet. However, over the past five years the sports wagering market became efficient and wagering on this group is a fair bet. The sports wagering market provides a fair bet regarding the highest paid football coaches' ability to score points. Once again, the efficiency of the total line improves over time. The total line over the past five-year period is better than the totals line over the ten-year period. The evidence generally supports market efficiency and shows that the sports wagering market is able to accurately incorporate new information. However, there appears to be pockets of inefficiency and a few coaches continue to not only win games but also are able to make money for the alumni and gamblers that bet on them. It should be noted that there is a publication bias in this type of research. Any research that identifies a profitable betting strategy is unlikely to be published. Once the information becomes public, the anomaly is likely to disappear; thus the researchers are more likely to exploit the strategy for a profit rather than publish the paper.

## References

- Even, W. E., and N. R. Noble. (1992) "Testing Efficiency in Gambling Markets." *Applied Economics* 24: 85-88.
- Farinella, Joseph and Moffett, Clay M. (2013), "Market Efficiency and Behavioral Biases in SEC Football: the Over-Under Wager", *Academy of Economics and Finance Journal*, 4, 16-19
- Gandar, J., Zuber, R. O'Brien, T. and Russo, B. (1988) "Testing market rationality in the point spread betting market", *Journal of Finance*, 43 995-1007.
- Hirshleifer, D. (2001). "Investor psychology and asset pricing." *Journal of Finance* , 56: 1533-1597.
- Levitt, S.D. (2004) "Why are gambling markets organized so differently from financial markets?" *Economic Journal*, 114, 223 – 246.
- Pankoff, L. (1968) "Market efficiency in football betting", *Journal of Business*, 41, 203-14.
- Paul, R.J., Weinbach, A.P. (2002) "Market efficiency and profitable betting rule: Evidence from totals on professional football", *Journal of Sports Economics*, 3, 256 – 263.
- Paul, R.J., Weinbach, A.P. and Wilson D. M. (2004) "Efficient markets, fair bets, and profitability in NBA totals 1995 – 96 to 2001 – 02", *Quarterly Review of Economics and Finance*, 44 (4), 624 – 32.
- Paul, R.J., Weinbach, A.P. (2005) "Bettor Misperception in the NBA; The Overbetting of Large Favorites and the 'Hot Hand'", *Journal of Sports Economics*, 6, (4), 390 - 400.
- Paul, R.J., Weinbach, A.P. (2005) "Bettor preferences and market efficiency in football totals markets", *Journal of Economics and Finance*, 29, 409 – 16.
- Paul, R.J., Weinbach, A.P. (2009) "Are behavioral biases consistent across the Atlantic? The over/under market for European soccer", *The Journal of Gambling Business and Economics*, 3, 89 – 101.
- Paul, R.J., Weinbach, A.P. (2013) "National television coverage and the behavioral bias of bettors: The American college football totals market," Working paper.
- Vergin, R. C., and J. J. Sosik, (1991) "No Place Like Home: An Examination of the Home Field Advantage in Gambling Strategies in NFL Football.", *Journal of Economics and Business*, 51: 21-31.
- Woodland, L. M., and B. M. Woodland. (1994), "Market Efficiency and the Favorite-Longshot Bias: The Baseball Betting Market." *Journal of Finance* 49: 269-280.
- Woodland, L. M., and B. M. Woodland. (2001), "Market Efficiency and Profitable Wagering in the National Hockey League: Can Bettors Score on Longshots?" *Southern Economic Journal* 67:983-995.



