

“DETERMINANTS OF TOP MANAGEMENT COMPENSATION:  
THE CASE OF NCAA FOOTBALL HEAD COACHES.”

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THE CASE OF NCAA FOOTBALL HEAD COACHES.”

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## CHAPTER I

### INTRODUCTION

#### **1.1 The Research Problem**

Executive compensation has been a subject of interest over the past decade. This interest might be attributable to the instances of executive overcompensation as defined in the media. The focus on executive compensation began with accounting scandals at WorldCom, Tyco, Enron, HealthSouth, and has not abated due to problems at Countrywide Mortgage, Freddie Mac, Fannie Mae, Lehman Brothers, AIG, and many others. In the most recent financial crisis, top executives have either resigned or been terminated, only to walk away with millions of dollars from executive severance packages. Bebchuk and Grinstein (2005) found the mean compensation for CEOs increased from \$3.7 million in 1993 to \$9.1 million in 2003, peaking at \$17.4 million in 2000, representing an overall increase of 146%. They found the compensation for the top five firm executives increased from \$9.5 million in 1993 to \$21.5 million in 2003, peaking at \$36.6 in 2000. This represents an increase of 126%. Controlling for firm growth and performance, Bebchuk and Grinstein (2005) find evidence suggesting that compensation for the top five firm executives, including the CEO, has increased beyond



what can be explained by or attributed to firm growth and performance. It should be noted, that since firms are not required to disclose executive pension plans or deferred compensation, the actual growth of compensation is probably understated.

Gillan, Hartzell, and Parrino (2009) examine top management employment agreements for CEO's at S&P 500 firms. They find that over one-half of the employment agreements between a CEO and their respective firm are implicit employment agreements. They develop a model to predict whether the employment agreement between the CEO and the firm will be implicit or explicit<sup>1</sup>. Their study provides insight into the factors that lead to the utilization of implicit or explicit contracts. One problem with their study is that it does not address the question: How does the structure of an employment agreement align the objectives of the firm's managers and owners?

Jensen, Murphy, and Wruck (2004) examine the history of executive remuneration, where it is now, what are the problems with current remuneration policies, and how to fix them. Their study identifies three critical dimensions that should exist in any remuneration policy in order to motivate executives to take actions that will create and sustain long-run shareholder value. These are (1) the total benefits associated with the job or position including the costs and benefits of non-pecuniary aspects of the job, (2) the composition of the remuneration package, and (3) the relation between pay and performance. Jensen, Murphy, and Wruck provide insight into some of the important

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<sup>1</sup> Gillan, Hartzell, and Parrino (2009) define an explicit employment agreement as a comprehensive written contract between a firm and their CEO, establishing the terms of their relationship including determining the CEO's responsibilities, compensation, perquisites, term of employment, the conditions under which either party can sever the relationship, and restrictions on the CEO's outside activities, among other considerations. An implicit employment agreement is defined as a contract having no written agreement, or a contract covering only limited aspects of a firm's relationship with their CEO, such as change of control, non-disclosure, non-compete, or non-solicitation agreements.

characteristics of an employment agreement between a firm and top management. This study does not test empirically these three critical dimensions.

The market for NCAA Football Bowl Subdivision head coaches is a market where there is competition for top management, similar to that of the market for top corporate management.<sup>2</sup> Additionally, this is a market where all top management has explicit contracts. This presents an opportunity to examine empirically the first two critical dimensions mentioned by Jensen, Murphy, and Wruck (2004). The objective of this study is to examine the compensation of the heads of athletic management to help increase the body of knowledge on compensation of top corporate managers.

Similar to the public outcry and growth that we have witnessed in top corporate CEO compensation, we have also witnessed an outcry regarding NCAA Football Bowl Subdivision head coaches. The USA Today reported that, “across the NCAA's Division I-A (now called the Football Bowl Subdivision or FBS), the number of million-dollar coaches has soared from five in 1999 to 50 today. It's sure to continue climbing in 2008.”<sup>3</sup> In fact, it has continued to climb as the number of coaches making over a million dollars has now ascended to 65 out of the 120 FBS coaches.<sup>4</sup> An article titled “Programs Struggle to Balance Budgets,” by the popular sports media source, ESPN, cited William Kirwan, the chancellor of the University System of Maryland and co-chairman of the Knight Commission of Intercollegiate Athletics, as stating "In a lot of ways, I see

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<sup>2</sup> NCAA is the National Collegiate Athletic Association. They are the governing body for all collegiate athletic programs.

<sup>3</sup> As reported by USA Today. To read the full article entitled “Contracts for College Coaches Cover More than Salary” go to [http://www.usatoday.com/sports/college/football/2006-11-16-coaches-salaries-cover\\_x.htm](http://www.usatoday.com/sports/college/football/2006-11-16-coaches-salaries-cover_x.htm).

<sup>4</sup> As reported by The Coaches Hot Seat. To access their salary ranking go to [http://www.coacheshotseat.com/SalariesContracts.php?Sentry\\_loginTkn=O0pvilcjlvsjgyvf](http://www.coacheshotseat.com/SalariesContracts.php?Sentry_loginTkn=O0pvilcjlvsjgyvf).

parallels between the implosion of our economy and the excessive spending in college athletics. There was an assumption that housing prices would always go up and up. You could buy a house and everybody assumed its value would increase. Intercollegiate athletics has lived in this fantasy world and assumed corporate sponsorships and TV contracts would always go up. Now we're finding out that's not the case. I think we've dug ourselves a huge hole." Kirwan continues, "There was such an outrage about what corporate CEOs were making and now people are looking at what coaches are making compared to other university personnel, and I think there's the same concern," Kirwan further states, "I think it's an outrageous situation. I think coaching salaries are certainly the driver of the excessive spending in athletics, but the arms race with facilities has been a huge contributor, too."<sup>5</sup>

In their 2006-2007 Annual Report on the Economic Status of the Profession, titled, "Financial Inequality in Higher Education," the American Association of University Professors, states, "If paychecks reflect the value of an individual to the university and its core educational mission, then Division I-A head football coaches are, on average, 9.4 times more valuable than their full professor colleagues. By this metric, the head football coach at the University of Oklahoma is 36 times more valuable than an average full professor at his university. The data suggest that even university presidents are less valuable to these institutions than football coaches. On average, coaches earned more than twice as much as their institution's chief executive officer." "The University

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<sup>5</sup> As reported by ESPN.go.com. The full article entitled "Programs Struggle to Balance Budget" written by Mark Schlabach and published on July 13, 2009 can be read at [http://sports.espn.go.com/ncaa/columns/story?columnist=schlabach\\_mark&id=4314195](http://sports.espn.go.com/ncaa/columns/story?columnist=schlabach_mark&id=4314195).

of Oklahoma apparently values its football coach eleven times as much as its president.”<sup>6</sup> This study indicates that the highest maximum annual compensation for a NCAA FBS head coach was in 2009, when the University of Texas’ head football coach Mack Brown had the potential to make \$4.63 million dollars. While this pales in contrast to executive compensation, the growth rate in both top corporate executive salaries NCAA FBS head coaches is somewhat similar.<sup>7</sup>

Corporate executive and football coach labor markets have a number of additional similarities. Pat Forde, a journalist for ESPN observed, “Most revenue-sport coaches at the top of the college food chain are accustomed to living like CEO’s. In fact, many believe that projecting a “we-do-everything-first-class” aura (private jets, huge offices, state-of-the-art facilities, etc.) is an important recruiting tool.”<sup>8</sup> Head football coaches receive numerous non-performance based perquisites similar to those received by top corporate managers, such as country club memberships, automobiles for personal use, and even personal use of personal aircraft paid for by the university. Additionally, analogous to top corporate executives, coaches that get terminated before the end of the term of their employment agreement without just cause (poor performance), often get paid hefty severance packages (i.e., golden parachutes) by the university. The previously mentioned USA Today article reports that when Michigan State University fired John L.

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<sup>6</sup> As reported by AAUP. The full 2006-07 annual report can be found at <http://www.aaup.org/NR/rdonlyres/B25BFE69-BCE7-4AC9-A644-7E84FF14B883/0/zreport.pdf>.

<sup>7</sup> Bebchuk and Grinstein (2005) found that mean compensation for CEO’s has increased from \$3.7 million in 1993 to \$9.1 million in 2003, representing an overall increase of 146% or an annual growth rate of 8.52%. Similarly, this study finds that mean compensation for NCAA Football Bowl Subdivision head coaches has increased from \$891,806 in 2003 to \$1,602,019 in 2009, representing an overall increase of 80% or an annual growth rate of 8.73%.

<sup>8</sup> As reported by ESPN.go.com. The full article entitled “Big-money Coaches Not Immune” written by Pat Forde and published on July 15, 2009 can be read at [http://sports.espn.go.com/espn/columns/story?columnist=forde\\_pat&id=4324690&sportCat=ncb](http://sports.espn.go.com/espn/columns/story?columnist=forde_pat&id=4324690&sportCat=ncb).

Smith in 2006, they paid him \$4.3 million to buy out the two remaining years of his contract<sup>9</sup>. In another article published by NBC Sports upon Notre Dame's firing of Charlie Weis at the end of the 2009 season, Notre Dame will be left on the hook for a speculated \$18 million dollars to buy out the remaining six years of his contract.<sup>10</sup>

## **1.2 Purpose of the Research**

The purpose of this dissertation is to examine head football coaching employment agreements for the NCAA FBS to determine the market for top management in athletics as well as gain further insight to relationships of top executive compensation in corporate firms.

## **1.3 Structure of the Research**

Chapter 2 discusses the seminal literature on compensation, contracts, and pay for performance.

Chapter 3 describes the NCAA Football Bowl Division head coach's employment agreements. More specifically Chapter 3 presents the data assembled from the various employment agreements. This data includes both the pecuniary and the non-pecuniary aspects of the employment agreements, university characteristics, and coach's characteristics. Chapter 3 also presents the summary statistics for the data variables.

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<sup>9</sup> As reported by USA Today. To read the full article entitled "Contracts for College Coaches Cover More than Salary" go to [http://www.usatoday.com/sports/college/football/2006-11-16-coaches-salaries-cover\\_x.htm](http://www.usatoday.com/sports/college/football/2006-11-16-coaches-salaries-cover_x.htm).

<sup>10</sup> As reported by NBCSports. To read the full article entitled "Swarbrick talk's buyout and coaching status" go to <http://irish.nbcsports.com/2009/11/swarbrick-talks-buyout-and-coaching-status.html.php>.

Chapter 4 designates both univariate and multivariate models used to determine the total maximum compensation, and the composition or structure of the employment agreement (guaranteed pay versus performance pay). Chapter 4 also presents the results of these models and discusses their implications.

Chapter 5 summarizes the findings of this study and its potential implications to the market for FBS football head coaches as well as any potential implications that can be made regarding corporate executive compensation.

## CHAPTER 2

### REVIEW OF COMPENSATION AND PAY FOR PERFORMANCE LITERATURE

This chapter reviews the literature on executive compensation and is divided into two main sections. The first section discusses literature on executive compensation and the second section covers pay for performance literature.

#### **2.1 Compensation Literature**

The literature involving executive compensation is extensive. Numerous reviews of this literature have already been done with the best being Murphy (1998), Core, Guay, and Larcker (2001), and Jensen, Murphy, and Wruck (2004). Murphy (1998) states “There has been an explosion in academic research on executive compensation. CEO pay research has grown even faster than CEO paychecks, skyrocketing from 1-2 papers per year in 1985 to sixty papers in 1995.” It did not tail off from that point either. Most of these literature surveys begin with a discussion of seminal papers such as Jensen and Meckling’s (1976) study on agency costs. Many compensation studies begin citing Jensen and Meckling (1976) because the chief goal of compensation agreements is to create incentives that motivate agents (managers) to align their goals with principals (owners or stockholders). A compensation agreement providing the agent with guaranteed compensation may lead to inefficiencies and overall poor performance, to the detriment of the principal. On the other hand, a compensation agreement providing only performance incentives may entice the principal to manipulate earnings, revenues, or any other performance measure upon which the agent’s compensation is based.

Jensen, Murphy, and Wruck (2004) attempt to determine the compensation practices that will minimize the agency problem they examine the history of executive compensation, the current executive compensation practices, the potential problems with the current compensation policies, and ways to fix the problems with current compensation policies. One particular problem they discuss is overvalued equity and its role in recent corporate scandals. Overvalued equity occurs when managers manipulate earnings or utilize other unethical means to inflate the market price of the firm's equity. This problem, they argue, stems from the performance based compensation that awards stocks and options to top executives. This method of performance based compensation has largely been viewed as a method to align the motivation of managers to the motivations of shareholders. As executives increase the market price of the firm's common stock, the wealth of these executives, increases. When executives have performance based compensation, there is a tendency to push the market price of the stock as high as legally possible. Executives in overvalued firms eventually realize they cannot generate the earnings necessary to support the overvalued stock price. In order to continue increasing the market value and meet market expectation, executives use the firm's high market value to make acquisitions. These acquisitions may or may not add economic value that maximizes shareholder wealth. They may have been done to satisfy growth expectations. Furthermore, executives may also be inclined to increase the aggressiveness of their accounting and operating decisions, to shift future revenues to present revenues and present expenses to future expenses. This often leads to further manipulation and eventually to fraud. Jensen, Murphy and Wruck point out that compensation can be a solution to agency problems but improper compensation may also



increase agency problems. They state that the only way to alleviate this problem is through increased governance systems.

Jensen, Murphy and Wruck (2004) further discuss the relationship between managers, analysts, and the capital market. They examine the incentives offered to the firm's managers to meet or beat analyst forecasts. They find the incentives erode the integrity of the firm. In fact, Healy (1985) indicates that bonus incentives are only effective in aligning managers' interests with the interests of shareholders when they are close to meeting bonus criteria. When managers are above their bonus target they have an incentive to be unproductive, shirk or even push potential earnings and sales to the next bonus period in order to help them achieve their future bonus target. This behavior is also evident for managers who have given up on achieving the current bonus target. They will again have an incentive to be unproductive, shirk or push potential earnings and sales to the next bonus period making it less likely they will receive a bonus in the current period, but more likely they will meet the future bonus target.

Jensen, Murphy and Wruck (2004) list 37 recommendations and guiding principles that should be included in an effective executive compensation package. Additionally, they identify the three critical dimensions of a compensation policy needed to motivate executives to take actions which will create and sustain long-run shareholder value. They are (1) the total benefits associated with the job or position including the costs and benefits of non-pecuniary aspects of the job, (2) the composition of the remuneration package, and (3) the relation between pay and performance.

Gillan, Hartzell, and Parrino (2009) empirically test many aspects of CEO employment agreements. They find over one-half of the employment agreements between a CEO and the firm are implicit in nature, meaning there are no written or documented compensation packages. They find the chance there will be an explicit contract increases in firms where the sustainability of the relationship is less certain and where the expected loss to the CEO is greater. They focus mostly on the circumstances under which a firm and a CEO would choose to have an explicit contract vs. an implicit contract. However, given their finding indicating less than one-half have written employment agreements presents a problem, in that any study utilizing CEO contracts may be biased toward the type of firms employing explicit contracts.

## **2.2 Contracts and Pay for Performance**

Scully (1974) is one of the first to examine pay versus performance utilizing Major League Baseball (MLB) player salaries and performance statistics. More specifically he determines whether there is an economic loss to MLB players due to the instigation of a reserve clause. In sports, the reserve clause is a restriction on a player's ability to negotiate with any team, other than the team owning the player's contract. The owner of the contract, however, is not free to simply reduce the compensation paid to a player, but negotiations are restricted between the two parties, thus restricting a player's ability to maximize his value on the open labor market. Under the reserve clause rules the only way a player can leave for another team is if the owner decides to either terminate the contract, in which case the player is free to negotiate with any other team, trade the contract to another team, or sell the contract to another team. To determine

whether there is truly an economic loss to the player based on the reserve clause, Scully estimates the salary function as well as the marginal revenue products of the factors of production for each individual. A comparison of the salary estimate and the marginal revenue product over various career lengths and performance levels are examined. The difference is determined to be the rate of monopolistic exploitation of the player by the owner due to the reserve clause. The results of his study show the reserve clause led to economic exploitation of MLB players, more specifically average players earned only 20% of their marginal contribution to team revenue and the star players earned only 15% of their marginal contribution to team revenue. “Scully’s model has become a benchmark for analyzing the effects of new contractual frameworks on a player’s salary.” (Antonietti 2006).

In 1975, one year after Scully’s 1974 study, a court decision rescinded the reserve clause thus giving MLB players the right to become free agents. This enabled a MLB player at the end of his contract to negotiate with any team in the open market. Sommers and Quinton (1982) expanded Scully’s model to account for this feature. Results of their study showed upon the rescension of the reserve clause, the salary paid to MLB free agent players was consistent with their marginal revenue product.

Scott, Long and Somppi (1985) again utilize the model developed by Scully (1974), this time to analyze National Basketball Association (NBA) player salaries. They find, in a market where players are free to sign with the team offering the most competitive salary, such as was the case for NBA players, salaries were consistent with their marginal revenue product. Jones and Walsh (1988) examine pay versus

performance in the National Hockey League (NHL). Utilizing Scully's (1974) model, they provide evidence that in the NHL player's salaries are also in line with their marginal contribution to team revenues. Thus, these players are not exploited. Additionally, they add a variable to Scully's 1974 model to account for ethnicity, more specifically to determine if French Canadians are discriminated against in the NHL. They find French Canadian players are not exploited and their salary is not significantly different than other players. Jones and Walsh also find evidence that the performance characteristics included in their model were all significant, further indicating performance is rewarded through a player's salary.

Lucifora and Simmons (2003) utilize the market for professional soccer players in the Italian major leagues to determine whether there is a superstar effect. In other words, is there a convex relationship in the salary structure, due to performance, of professional soccer players after controlling for personal attributes and team characteristics? They find evidence to support the existence of a superstar effect in the Italian soccer league.

Shmanske (2000) examines pay versus performance in golf, a sport featuring an individual performance, not team performance. Shamanske breaks down golf into four skill categories. He then regresses earnings per tournament on the skill categories and finds significant evidence that golfers are rewarded based on the performance of two of the four skills, putting and driving distance. He further examines both the Professional Golfers' Association (PGA) and Lady's Professional Golfers' Association (LPGA) together and finds there is not sufficient evidence to suggest discrimination of rewards between the skills in the two league. The payouts on the LPGA tour are smaller

compared to the PGA but are proportionate to the level of skill when combining the golfers of the two tours.

Clayton and Yermack (2001) utilize MLB player contracts to examine the use of real options within these contracts. They find real options having a significant effect on MLB player contracts. More specifically, players receive a higher compensation when the team has an option on future services and lower salaries when the player has an option to extend their contracts. Clayton and Yermack (2001) are only able to look at one type of real option, the option to extend a player's contract.

Stiroh (2007) analyzes contract related incentive effects for NBA players. More specifically, he examines NBA player contracts to determine if there is an incentive for players to improve performance in the year before they sign a multi-year contract. He finds there is a significant increase in player performance in the year prior to signing a multiyear contract, and there is a significant decrease in player performance in the year following the signing of a multiyear contract. Additionally, teams with more players in the final year of their contract significantly outperform (increase wins), but performance again falls when those players sign multiyear contracts.

Other studies focusing on individual incentives include Lazear (2000), Paarsch and Shearer (2000), and Shearer (2004), who study changes in firm wide compensation plans. The empirical literature on executive pay and performance includes Murphy (1985, 1986), Jensen and Murphy (1990), Gibbons and Murphy (1992), Kaplan (1994), and Hall and Liebman (1998), among others.

## CHAPTER 3

### DATA

The National Collegiate Athletic Association (NCAA) is the governing body for all collegiate sports across the nation. In 1973, the NCAA's membership was divided into three legislative and competitive divisions, Division I, Division II and Division III. Five years later, Division I members voted to create subdivisions I-A and I-AA. On December 15, 2006 the previously mentioned subdivisions were renamed to become the Football Bowl Subdivision (FBS) and the Football Championship Subdivision (FCS). This subdivision distinction is only relevant to collegiate football programs. In 2009, there were 120 NCAA FBS programs. This number increased from 119 with Western Kentucky University becoming a member of the FBS, the highest division in college football.<sup>11</sup>

For purposes of this study, contract and university information for 120 of the NCAA Football Bowl Division programs over the period 2003-2009 is collected<sup>12</sup>. This yielded 834 university observations over the seven year period of time. Of the 120 NCAA Football Bowl Division programs, contract information cannot be obtained for the private universities which account for 20 of the NCAA Football Bowl Division programs, leaving 694 possible contracts. In addition to the private universities, the University of Oregon and Oregon State University cite copyright infringement laws precluding the

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<sup>11</sup> A complete history of the NCAA and the Football Division can be found at <http://www.ncaa.org/wps/ncaa?ContentID=1354>

<sup>12</sup> The University of Western Kentucky was added in 2009 leading to 120 total NCAA Football Bowl Division universities. Prior to 2009 there were only 119 NCAA Football Bowl Division universities. This yields 834 university observations from 2003-2009.

sharing of their contracts with the public. Northern Illinois, Pennsylvania State University, the University of Pennsylvania, University of Akron, and Temple University have not released their contracts also citing privacy laws, leaving 645 possible contract years. Of the remaining years, response rates from various other institutions lead to 126 incomplete or missing contract years. The final data set contains 519 NCAA Football Bowl Division university observations for the period 2003-2009.

### **3.1 Description of Data**

Table 1 contains the descriptions for the variables contained in this data set. Variables are segregated into three categories: Coach Characteristics, University Characteristics, and Contract Characteristics. University Characteristics are further divided into three subcategories: General, Game Performance, and Recruiting Performance. Contract Characteristics are further broken down into Salary Information, Performance Based Incentives, Non-Performance Based Incentives, and Termination and Buyout Clauses.

#### **3.1.1 Coach Characteristics**

Coach characteristics consist of variables providing a description of the coach. Variables such as age, race, career performance, university performance, the coach's reason for leaving previous place of employment are reported.

Collection of race variables comes from searching individual university websites and visually observing the race of each head football coach. Age, coaching tenure, university head coaching tenure, head coaching age, and win/loss records are collected

from one of three web sources: NCAA Coach/Student-Athlete Look-up, Coaches Hot Seat, and the College Football Data Warehouse.<sup>13</sup> Career winning percentage and university winning percentage are calculated by dividing games won by total games coached. Length of contract, contract beginning dates and contract ending dates are collected from university employment agreements for NCAA Football Bowl Division universities. Information concerning the coach's previous employment is collected from various internet sources, including university websites, coach's personal websites and from Wikipedia. In cases where the primary source of information is Wikipedia, the information is verified with at least one additional source.

### **3.1.2 University Characteristics**

University characteristics include variables describing various aspects of the university. These variables are further broken into three subcategories: general, game performance, and recruiting performance.

The NCAA FBS is divided into 11 conferences. Conference affiliation contains a large amount of information. To control for this dummy variables are included for each conference. General university characteristics are also included. These general university characteristics consist of the university's endowment, revenues, and stadium capacity. These variables not only capture information on the size of the university, but

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<sup>13</sup> The NCAA Coach/Student-Athlete Look-up database found at, [www.ncaa.org](http://www.ncaa.org), Coaches Hot Seat is a subscription based website that concentrates on NCAA Division 1-A Basketball coaches and NCAA Football Division coaches. They collect news and information, including salary information, for all NCAA Football Bowl Division head coaches. This website can be found at [www.coacheshotseat.com](http://www.coacheshotseat.com). College Football Data Warehouse is a website that has compiled numerous databases on both current and past college head football coaches. This website can be found and accessed without subscription at [www.collegefootballdatawarehouse.com](http://www.collegefootballdatawarehouse.com).



they also capture the popularity or potential market size of a university's football program. Stadium capacity information is collected from the College Football Data Warehouse. Endowment information is collected from National Association of College and University Business Officers Annual Endowment Study.<sup>14</sup> University football revenues are collected from U.S. Department of Education's Equity in Athletics Database.<sup>15</sup>

Information about succession events surrounding the university's previous head coach are also contained in this section. Succession information is collected from searches of various internet sources, including university websites, coach's personal websites and from Wikipedia. As previously mentioned, data collected from Wikipedia, is verified with at least one additional source.

### **3.1.2.1 University Characteristics: Game Performance**

Game Performance variables include university win and loss record, average attendance, and average attendance as a percent of stadium capacity. Average attendance is collected from attendance reports submitted by the universities to the NCAA.<sup>16</sup> Average attendance as a percent of stadium capacity is calculated as average attendance divided by stadium capacity. University win/loss record for the current year and the previous year are collected from the College Football Data Warehouse or the NCAA.

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<sup>14</sup> The National Association of College and University Business Officers Annual Endowment Study can be found at [www.nacubo.org](http://www.nacubo.org).

<sup>15</sup> The U.S. Department of Education's Equity in Athletics Database can be found at <http://ope.ed.gov/athletics/Index.aspx>.

<sup>16</sup> The NCAA attendance reports can be found at [www.ncaa.org](http://www.ncaa.org).

### 3.1.2.2 University Characteristics: Recruiting Performance

Recruiting performance variables are collected through a popular online scouting and recruiting service called Rivals<sup>17</sup>. Each year Rivals indicates by university their recruiting performance using three different indicators: average stars, points, and overall rank.

Rivals rates each individual football recruit giving them a rating based on talent level, with one star being the lowest and five stars being the highest. A university's recruiting class is calculated as the average stars received by each individual recruit.

Rivals developed a unique and proprietary formula allocating points based on different recruiting criteria.<sup>18</sup> These points are the basis for Rivals rankings. Rivals ranks the university recruiting on the number of points the program received from its recruiting commitments with 1 being the highest rank. Points and rank information are collected and utilized in this essay due to the difference in the measures. Total recruiting points contain more information than rank, because points can measure the degree of difference between two closely ranked teams. For example, teams ranked fourth and fifth may have a difference in points of 25, whereas teams ranked sixth and seventh may have a difference in points of 100. From the measure of points you can see the fourth and fifth ranked teams are closer in recruiting performance than the sixth and seventh ranked teams.

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<sup>17</sup> Utilizing information from Rivals is consistent with previous recruiting studies and follows that of Dumond, Lynch, and Platania (2008).

<sup>18</sup> Teams are awarded points through a formula that rewards them for both the quantity of commitments and the quality of those players. Prospects with higher star ratings earn more points for the school to which they commit; prospects that are ranked among the top at their positions earn still more points; and prospects that are ranked on the Rivals 100 earn even more bonus points

The length of impact an individual or the entire recruiting class has on a team must also be considered but can be difficult to ascertain. An individual recruit typically has four years of eligibility (two years for junior college recruits). Therefore, individual recruits will have an impact on a team for much longer than the year in which he was recruited. This necessitates collecting recruiting results for up to four prior years for each observation. However, recruits do not necessarily stay for the entire four year eligibility period. Often the most highly recruited players leave after as little as three years to enter into professional football. Therefore, information is averaged for two years, three years, and four years to account for the potential impact an individual recruit or an entire recruiting class may have on team performance beyond the initial recruiting year.

### **3.1.3 Head Coach Contract Characteristics**

Contract characteristics consist of variables collected from university head coach contracts. Contract characteristics are broken down into four subcategories: General and Salary, Performance Based Incentives, Non-Performance Based Incentives, and Termination and Buyout Clauses.

#### **3.1.3.1 Head Coach Contract Characteristics: General and Salary**

General and salary contain contract year, total contract years, contract years remaining, annual salary, and other benefits paid to the coach. Included are base salaries, other salaries, signing bonuses, outside income, and deferred income the coach is paid as part of the contract.

Base salary, other salary and bonuses are considered to be guaranteed salary and in most cases are paid by the university. Base salary, other salary, and bonus information are collected from the university's head coaching contract. Other salary contains additional salary paid from the university to the coach above what is considered his yearly base salary. This could be in the form of retirement payments, yearly longevity payments, and personal expense accounts. Signing bonuses are bonuses paid to the coach at the signing or the inception of the contract.

Outside income opportunities are difficult to value and therefore are controlled for utilizing dummy variables. A university's head football coaching contract specifying the coach may seek outside opportunities to earn income conducting a summer football camp is controlled utilizing an "Outside Income: Camp" dummy variable. This variable will receive the value of 1 if the university's head football coaching contract indicates he may seek opportunities to earn outside income by conducting a summer football camp, or 0 if the employment agreement does not specify or if it prohibits this. This same procedure is utilized for clauses specifying other outside income opportunities for endorsements, equipment, shoe, apparel, and media appearances.

Supplemental payments obtained by the coach for marketing appearances, and annuities are also contained within salary characteristics. These payments differ from base salary, other salary and signing bonuses because these payments are not generally guaranteed in most contracts and are not typically paid by the university. This is important when determining the compensation due the coach if the university terminates his contract without cause.

Deferred income is another important component in many head football coach contracts. Deferred income payments may be included in a contract to incentivize the coach to stay at the university instead of leaving for other employment. Generally, the coach only receives this payment if he is still employed as the head coach on a specified future date. If the contract is terminated by the coach via the buyout clause, by the university with cause, or by the university without cause, the deferred income is forfeited. Some contracts, however, contain a clause allowing the coach to maintain his eligibility for the current deferred income balance in cases of termination without cause, death or long-term disability.

In general, base salary, other salary, and signing bonuses are considered to be guaranteed and supplemental market and annuity payments are not guaranteed. In the case of this study, however, each contract year is an individual observation, and thus supplemental market and supplemental annuity payments are considered guaranteed for the current contract year. Once a season begins supplemental market and annuity payments are generally paid even if a coach is terminated mid-season. For the aforementioned reason, guaranteed salary is calculated as the summation of base salary, other salary, bonus, supplemental market, and supplemental annuity.

In order to accurately measure the impact of performance incentives, maximum incentive is calculated as the summation of all monetary performance incentives. It is assumed each coach met all of his performance measures as specified in his contract. In other words the football coach won all regular season games, the conference division championship, the conference championship, the NCAA national championship, both the

conference and the national coach of the year, achieved maximum national ranking, maximum attendance, maximum season ticket sales, and any other performance threshold leading to an increase of a performance bonus. Due to the large variation in value of the non-performance incentives, these are not included in the calculation of the maximum incentive variable.

The maximum total salary is calculated as the summation of both guaranteed salary and maximum incentives paid to the coach. Additionally, the percent compensation that is guaranteed is calculated by dividing guaranteed salary by maximum total salary. This variable is identified as percent guaranteed salary.

### **3.1.3.2 Head Coach Contract Characteristics: Performance Incentives**

Performance incentives and non-performance incentives contain information about additional compensation paid to the coach for achieving agreed upon performance thresholds. These performance thresholds may be for academics, game appearances, winning games, personal awards or honors, ticket sales, attendance and other performance thresholds.

Due to the nature of collegiate sports, the academic performance of student athletes is closely monitored. The NCAA maintains and requires member universities to submit information on the academic performance of their athletic programs. Academic Progress Rate (APR) and Graduate Success Rate are two measures of academic performance the NCAA requires member universities to report. To align the goals of the football program, the head football coach, the university and the NCAA, many contracts

include academic performance incentives. These incentives reward a coach for maintaining or improving the academic performance of athletes in the football program. For the purpose of this study, it is assumed that the head coach meets the highest degree of academic performance and therefore, the academic performance incentive is maximized.

Making an appearance in significant games is similarly important to a university football program. Often making the appearance is more important than winning the game. This is evidenced by the number of performance incentives contained in head coach contracts for appearing in key games. Some of the key appearance incentives contained in head coaching contracts are for conference championship games, bowls games (there may be multiple incentives for the level of bowl game), and the national championship game. Information for the appearance incentives is gathered from each contract.

Winning games is a vital measure of a football program's performance. Many performance incentives are linked to winning a certain number of games or even one or two crucial games. Many head football coaching contracts contain performance incentives rewarding a coach for each game he wins above a certain number of games. Moreover, many of these employment agreements contain significant incentives aimed at winning crucial games. These include rivalry games, conference championship games, bowls games, and the national championship game. Information for these incentives is again gathered from each contract.

Personal awards and honors such as conferences coach of the year, or national coach of the year, carry monetary incentives as well. Information on the level of monetary incentives is collected from each contract.

Other performance incentives paid to the coach are based on season ticket sales, single game ticket sales, or game attendance. Other performance based incentive information are collected from head coaching contracts, added together and reported as “all other incentives.”

As with the academic incentive, all the performance incentives are assumed to have been achieved at the highest level and reported as “maximum incentive.”

### **3.1.3.3 Head Coach Contract Characteristics: Non-Performance Incentives**

Non-Performance incentives are difficult to define in monetarily terms as there are vast differences in their value. A country club membership can be valued very differently amongst different contracts depending on the level of the country club or location of the country club. Most contracts do not report the name or location of the country club and makes valuation even more problematic. Non-performance incentives are identified using dummy variables indicating the existence of a particular non-performance incentive in the head coaching contract. The monetary value added to each contract through non-performance incentives is minimal and should not bias the results of this study. Some of the non-performance incentives gathered and reported in this study are automobile usage, country club memberships, spousal or family travel privileges, use of a football suite, additional football tickets, and season tickets to other sporting events.



### **3.1.3.4 Head Coach Contract Characteristics: Termination and Buyout**

Termination and Buyout Characteristics refer to the existence of contract clauses specifying terms and conditions where the contract can be terminated. Termination clauses can be viewed as options and are exercisable by the university with or without cause. When the university terminates the head coach's employment contract with cause, they can do so without paying the coach any further salary concessions. However, when the university terminates the head coach without cause, the contract may stipulate that the university must pay certain salary concessions. Similar to the option the university holds to terminate the employment contract, a buyout option can be viewed as an option exercisable by a head coach to terminate or buyout the remaining years of his employment agreement at a specified price.

Most termination variables are controlled for using dummy variables to indicate whether the contract contains specific clauses allowing the university to terminate the coach's contract with cause. These clauses mention circumstances such as violation of conference rules, NCAA rules, contract clauses, university rules, laws leading to criminal charges of moral turpitude, or long term disability of the coach or the death of the coach.

The university also has the option to terminate the contract without cause (any cause other than those identified above as circumstances of cause) but must do so at a cost. The cost of exercising the option to terminate without cause is collected from the head coaching contracts. Dummy variables are used to indicate whether the university is required to pay the balance of the coach's deferred income account upon termination without cause and the university's right to reassign the head football coach to duties other

than head coach while still paying his base salary for the remainder of the contract term. Additionally, a dummy variable is used to indicate whether a contract contains a mitigation clause requiring the head coach to seek other employment opportunities after termination without cause. Upon employment, the university would only be obligated to make up the difference in pay between the salary as a head coach and the new employment salary.

Buyout variables refer to the coach's right to exclude the remaining contract term at a cost to the coach. This buyout option is controlled using a dummy variable where the existence of the buyout option is given a value of 1, and the non-existence of the buyout option is given a value of 0. The buyout cost specifies the charge the head coach must pay to the university to buyout the remaining years of the contract. A coach will often buyout the remaining years of his contract in order to take a new coaching job either at another university or the NFL. When the coach exercises this option, he may or may not be eligible for his deferred income and this is controlled for utilizing a dummy variable.

### **3.2 Empirical Summary of Data**

Table 2 presents descriptive statistics for variables contained in this data set. Variables are again segregated into three categories: Coach Characteristics (Panel A), University Characteristics (Panel B), and Contract Characteristics (Panel C). University Characteristics are further divided into three subcategories: General (Panel B1), Game Performance (Panel B2), and Recruiting Performance (Panel B3). Contract Characteristics are further broken down into Salary (Panel C1), Performance Incentives

(Panel C2), Non-Performance Incentives (Panel C3), and Termination and Buyout (Panel C4).

### **3.2.1 Coach Characteristics**

The mean (median) age for the 518 NCAA Football Bowl Division head football coaches in this study is 51.20 (51) years old. Bobby Bowden (79), the 2009 head football coach for Florida State University, is the oldest coach in this study, while Lane Kiffin (34), the 2009 head football coach for the University of Tennessee is the youngest coach in the study. [Note: Joe Paterno (81), the 2009 head football coach for Pennsylvania State University, is the oldest head coach in all of NCAA's FBS. However, Pennsylvania State University, did not release their contracts, citing privacy laws. Therefore, his contract is not contained in this study.

Out of the 518 university year observations, 93% (482) of the head coaches are Caucasian, 5% (26) are African American, and 2% (10) are from another race, such as Hispanic, Asian, or Samoan. Note that 93% (777) coaches out of the potential 831 FBS are Caucasian, 5% (40) are African American, and 2% (15) are from another race. Therefore, in regards to race, the sample used in this study is a well represented sample of the population.

The mean (median) number of years a head coach has been employed at his current university is 5.53 (4) years, with the lowest tenure being one year and the longest tenure, 34 years, by Bobby Bowden at Florida State University. On average (median) each head coach has won 40.65 (26) games, and lost 27.61 (23.5) games at his current

university, leading to a mean (median) university winning percentage 54.00% (54%). The highest number of university games won is 316, while the most number of university games lost is 97. Both numbers were achieved by Bobby Bowden. The highest university winning percentage is 100% by Chris Peterson who in 2006 won all 13 games in his first year as Boise State University's head football coach.

The mean (median) number of career-years a head coach has been employed as a head football coach is 10.10 (8) years. A number of coaches in this study have only been a head coach for 1 year, and the largest tenured head coach in this study is Bobby Bowden, who has been a head coach for 44 years. An additional variable, head coaching age, is determined as the difference between the head coach's age and career tenure. This measures the relative age at which a head coach became a head coach. The mean (median) head coaching age is 41.10 (41) years. The youngest head coaching age is 21 for Brian Kelly at both Central Michigan and Cincinnati. The oldest head coaching age is 61 for Bill Doba at Washington State University.

The mean (median) career wins for a university head coach is 71.84 (57) games, accompanied by the mean (median) career losses of 47.46 (40) games. This leads to a mean (median) career winning percentage of 55.36% (58.00%). The highest number of games won is 389, again by Florida State's Bobby Bowden. The most games lost is 160 by Mike Price, the head coach for the University of Texas at El Paso.

The highest career winning percentage in this study was 100%, again in 2006 by Chris Peterson, who as a first time head coach had a perfect 13-0 record at Boise State

University. As of 2009, the highest winning percentage among head coaches in this study was still Chris Peterson with a career winning percentage of 92%.

As shown from the summary statistics, 92.28% of the head coaches voluntarily left their previous employment for the opportunity to become the head coach at their current university. High performing coaches will not be fired from their previous employment because they are meeting or exceeding the expectations of their job position. They will, however, have new employment opportunities open up because of their performance that either pay more or are more prestigious and therefore, will voluntarily resign to accept the better opportunity. Of the coaches in this study, 42.86% were experienced head coaches and had been a head coach previously, 17.57% were employed by a team in the NFL, and 15.64% held a position other than head coach at the university and were hired as the head coach from within the university.

### **3.2.2 University Characteristics**

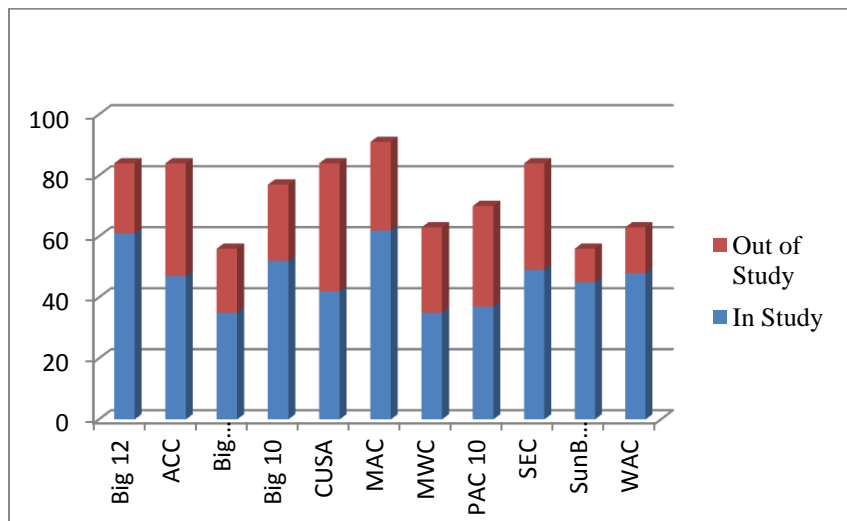
We can determine a number of characteristics about the structure of the NCAA Football Bowl Division and the universities involved within this division from analyzing the summary statistics in this section. As previously mentioned, the NCAA Football Bowl Division is comprised of 11 conferences. The first set of variables describes the conferences and the university football programs within each conference.

The biggest conference in terms of number of university-year observations in this study is the Mid-Atlantic Conference, with 62 university-year observations, and the smallest conference in terms of the number of university-year observations in this study

is the Big East and the Mountain West Conference, each with 35 university-year observations. In reality, the largest NCAA Football Bowl Division conference is the Mid-Atlantic Conference with 13 member schools, and the Big East and the SunBelt are both tied with the smallest number of member universities at eight each. Again, in regards to conference affiliation, this study's sample is consistent with the overall population.

Figure 1 below shows, by conference, the number of university-year observations included in the study, the number of university-year observations not in the study, and the total number of university-year observations in the particular conference.

**Figure 1: Number of University Year Observations by Conference**



As part of the University Characteristics section, information regarding the circumstances surrounding the hiring, or a need to hire, of the current head football coach is reported. Forty-two percent of the universities in this study sought new head coaches because their previous head coach either resigned to take another position at another program (collegiate or professional) or he retired from coaching. The other 58% of the

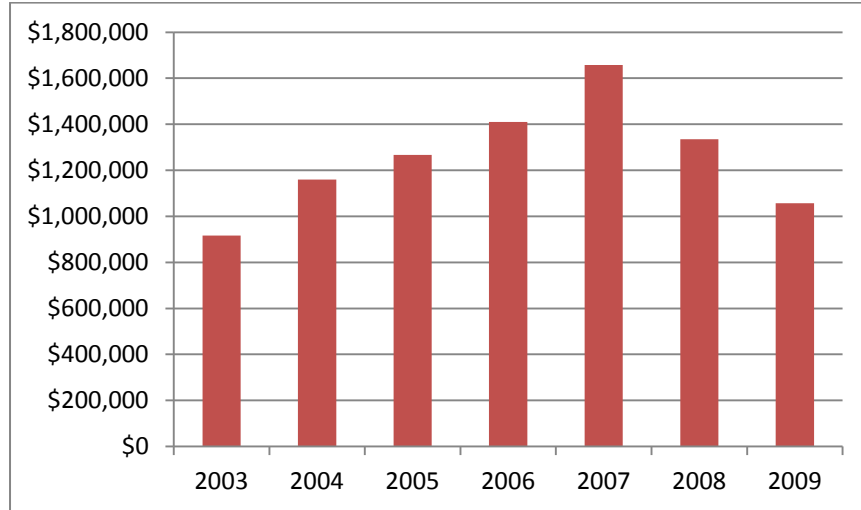
universities in this study sought new head coaches after firing their previous head coach with or without cause. Twenty-five percent of the universities previous head coaches went on to be head coaches at their new place of employment and 11.6% went on to be employed as a head coach in the NFL.

Stadium size, total university endowment, and football revenues are potentially important determinants of compensation. Stadium capacity, current endowment, and revenues can all serve as proxies for size. As a university's revenues from the football program increases, the university can afford to pay larger salaries. These variables also serve as proxies for popularity or fan base. As fan base increases, supplemental marketing salary would also increase, due to media's ability to increase advertising revenues.

This dissertation finds the mean (median) stadium has a capacity of 53,247 (50,250). The smallest stadium capacity is reported to be the University of Idaho with a capacity of 16,000 and the largest stadium capacity is reported as the University of Michigan with a reported capacity of 107,501.

The mean (median) university endowment from 2003 to 2009 is \$920,066,250 (\$412,308,000). It is evident that there is a high level of disparity between schools and this data is highly skewed to the larger endowments. This is evident when we see Troy University has the smallest endowment of \$17,542,000 and the University of Texas has the highest endowment of \$16,171,184,000. Figure 2 shows the average university endowment between 2003 and 2009.

**Figure 2: Average University Endowment**

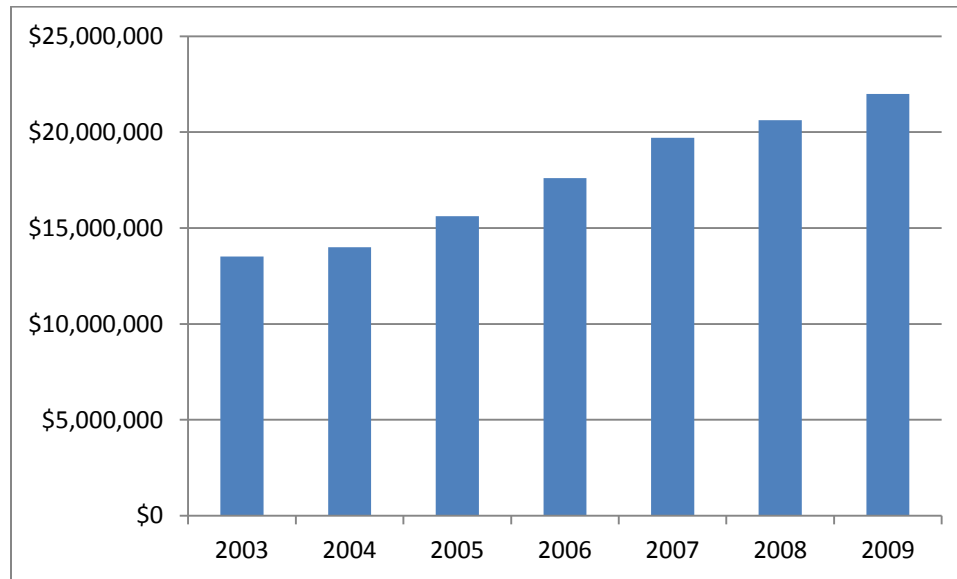


The average university general endowment has decreased since 2007 due to the investment losses of the recent financial crisis. The decrease in general endowment has not only affected general university budgets, but has also affected university athletic department budgets. As budgets decrease, there should be an overall decrease in the coach's compensation as well.

Mean (median) university football revenue is \$17,908,752 (\$12,205,141). The median is smaller than mean as a number of universities football revenues far exceed other universities. The University of Akron's 2005 revenues of \$740,749 represent the lowest revenues, and the University of Texas' 2009 revenues of \$ 93,942,815 represent the highest revenues in this study. Figure 3 indicates that revenues have increased each year from 2003 to 2009.



**Figure 3: Average University Football Revenue**



### **3.2.2.1 University Characteristics: Game Performance**

Game Performance variables include university win/loss record, average attendance, and average attendance as a percent of stadium capacity.

The mean (median) wins for the current year were 6.56 (7) games and losses were 5.85 (6) games. We can see the mean (median) wins for the previous season were 6.56 (7) games and losses were 5.77 (6) games.

The mean (median) average attendance were 45,118 (41,209) people. The University of Michigan had the largest reported average game attendance at 111,025 people in 2004, and Eastern Michigan University reported the lowest average game attendance of 5,016 people in 2009.

Percent stadium capacity is calculated by dividing the average attendance by stadium capacity thus representing attendance as a percent of stadium capacity. Table 2

reports the mean (median) attendance as a percent of stadium capacity for the average university is 79.67% (87.0%). Rutgers, The State University of New Jersey, reports an average attendance as a percent of stadium capacity of 117% in 2009. This overestimation may be due to reporting differences. When universities determine average attendance through ticket sales, there may be more tickets sold than seats allocated. This leads to an estimation that exceeds both capacity and true attendance. When universities determine average attendance by tracking the number of tickets utilized for the game, a more accurate attendance is determined. The university with the lowest reported attendance as a percent of stadium capacity is Eastern Michigan University with an average attendance as a percent of stadium capacity of 17% in both 2005 and 2009.

### **3.2.2.2 University Characteristics: Recruiting Performance**

Recruiting performance variables explain how well the university and the football program have recruited high school football talent. The head coach is ultimately in charge of and responsible for the university's football recruiting program. If there is a change in a university's head coach, the student athletes recruited by the previous head coach do not leave with the coach, they stay with the university. There are rules in place protecting a university from losing the football recruits that have committed to play football for the university. A student athlete right out of high school has four years of eligibility to play football. The student athlete signs a letter of commitment indicating their intent to play all four years at one university. If a player wishes to transfer to another institution, they are required by the NCAA to sit out one year and lose the year of

football eligibility leaving the student athlete three years of eligibility. Though strongly influenced by a head coach, recruiting performance is better suited as part of university characteristics.

Rivals, a popular recruiting and scouting service, use three indicators to measure university recruiting performance: Rank, Average Stars, and Points. Table 2, Panel D summarizes the variable statistics for the four year average, three year average, and two year average for each of the recruiting variables (Rank, Average Stars, and Points). For 518 university programs, the mean (median) recruiting Rank as determined by rivals is 57.86 (59) out of 120 NCAA Football Bowl Division universities ranked by Rivals. The highest rank is understood to be equal to one each year with the potential that more than one school can receive a one ranking. However, the lowest ranking could potentially be different than 120. For instance if two schools were to tie for the lowest rank, as did Kent State University and the University of Texas El Paso in 2004, then they would share a ranking of 118.<sup>19</sup> The mean (median) for Average Stars as determined by Rivals from 2003-2009 is 2.59 (2.46) stars out of 5 stars. The highest Average Stars for the 2003-2009 period is 3.94 received by the University of Florida's recruiting class of 2009. The lowest Average Stars for the 2003-2009 periods is 1.73 received by the University of Louisiana at Monroe's 2006 recruiting class. The mean and median rank and average stars are consistent with expectations. The mean and median for rank should be expected to be 60 out of 120 and the mean and median for average stars 2.50 out of 5. The mean (median) points as determined by Rival's proprietary formula from 2003-2009 is 717.24

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<sup>19</sup> In 2004 there were only 119 NCAA Football Bowl Division schools therefore the lowest ranking possible would have been 119.

(406). As determined by Rivals, the 2007 of University of Florida recruiting class has the highest points of 2959. Rivals lowest points total was 39, achieved by the 2004 Kent State University's recruiting class, the 2004 University of Texas El-Paso's recruiting class, and the 2008 University of Northern Illinois' recruiting class.

Due to a student athlete's four year eligibility, recruiting results from four years earlier can affect the universities current year football performance; therefore, information consisting of the last four years of recruiting performance for each university is gathered. Recruiting information is combined to determine the effect of four year, three year, and two year recruiting performance. Junior college student athletes typically have two years left of eligibility. These recruits are also included in Rivals recruiting rankings. Furthermore, student athletes can declare themselves eligible for the NFL draft three years after completing high school. This makes it necessary to also test four year, three year, and two year recruiting variables for significance and robustness.

### **3.2.3. Head Coach Contract Characteristics**

This section examines NCAA FBS head coach. Understanding the characteristics of these contracts not only leads to an increased understanding of the nature of top athletic management employment agreements and compensation, but it can also lead to an increased understanding of the nature of top corporate executive management employment agreements and compensation. This section focuses on summary statistics for salary (both guaranteed and non-guaranteed), performance incentives, non-performance incentives and termination and buyout.

### **3.2.3.1 Head Coach Contract Characteristics: General and Salary**

The mean (median) term of NCAA FBS head coaching contracts from 2003-2009 is 6.51 (6.00) years. Miami University of Ohio's head coach, Shane Montgomery, has a rolling one year contract representing the shortest employment agreement term, while Houston Nutt's had a previous employment agreement with the University of Arkansas beginning on December 10, 1997 and expired on December 31, 2011, representing the longest contract term of 14.1 years. In 2008, he voluntarily resigned and became the head football coach for the University of Mississippi. Currently, Greg Schiano with Rutgers, the State University of New Jersey the longest active contract term of 14 years.

Base Salary, Other Salary, and Signing Bonus capture salary paid to the head football coach by the university. These do not include supplemental salaries paid by other entities or university affiliated associations. Base Salary, Other Salary, and Signing Bonus are considered guaranteed salary and are the foundation for determining the university's obligation to the head coach when exercising the option to terminate the contract without cause.

The mean head coach's base salary from 2003-2009 is \$288,716 with a median of \$228,300. This suggests data for this variable might be slightly skewed toward coaches with higher base salary contracts. Charlie Weatherbie at the University of Louisiana at Monroe has the lowest base salary of \$75,000, whereas Bobby Petrino at the University of Arkansas has the highest base salary of \$1,900,000. In most cases, base salary is only one aspect of a contract's total compensation, however in Bobby Petrino's contract, he

receives all of his compensation as base salary and he receives no supplemental salary compensation.

There are only 115 NCAA FBS university head coaching contracts providing other salary paid by the university. The mean (median) other salary for the 115 employment agreement observations is \$292,136 (\$120,000). The University of Iowa's head coaching agreement with Kirk Ferentz provides for \$1,800,000 as other salary. This portion of his annual salary is identified in his contract as a longevity bonus paid if he remains the head football coach through June 1<sup>st</sup> of each contract year. Rick Stockstill of Middle Tennessee State University has a \$4,800 unaccountable expense account which is included within other salary. This expense account can be spent without any accountability.

There were only 31 agreements providing signing bonuses. Mark Snyder of Marshall University received a signing bonus of \$25,000 when he signed a new contract in 2006, and Jeff Tedford of the University of California received a \$1,000,000 bonus for signing a new contract extension in 2007.

#### **3.2.3.1.1 Head Coach Contract Characteristics: General and Salary: Outside Income**

Most head coach contracts provide opportunities for head coaches to earn additional outside income from sources other than the university through endorsements, equipment, shoe and apparel agreements, media agreements, and football camps. The details of outside income clauses vary between contracts and are not examined in this

study. The value of these clauses is difficult to determine. The NCAA does require universities and head coaches to report all outside income sources in order to insure there are no violations of NCAA regulations; however, these reports are not made public and cannot be valued for this study. This study simply identifies the existence of clauses contained in the contracts allowing the head football coach to receive outside income. Summary statistics show 90.25% of the contracts allow the head coach to receive outside income by holding summer football camps. Universities often allow coaches to utilize their facilities, including dormitories for housing and meals, as well as the football equipment at nominal rates. Normally, net profits received from summer football camps are considered outside income paid to the head coach. Seventy-eight percent of the contracts allow the head coach to receive outside income from various endorsement agreements, 66.86 percent of employment agreements allow the head coach to receive outside income from equipment, shoe and apparel agreements, and 70.96% of employment agreements allow the head coach to receive outside income from media agreements.

#### **3.2.3.1.2 Head Coach Contracts Characteristics: General and Salary: Supplemental Salary**

A significant portion of many head football coach's compensation agreements contain supplemental payments. These payments are paid by sources outside but closely affiliated with the university, such as athletic booster associations or equipment manufacturers. The largest portion of these supplemental payments are received by the head coach in return for exclusive television and radio rights, public relations

appearances, speeches, and equipment and apparel contracts. These payments are classified as supplemental marketing salary. Eighty-two percent of university head coach contracts from 2003-2009 include supplemental marketing salary. The mean (median) supplemental marketing salary for a head coach is \$661,231 (\$505,000). Florida Atlantic University's head coach contract pays Howard Schnellenberger the lowest supplemental marketing salary of \$1,000, whereas the University of Alabama's head coach contract pays Nick Saban the highest supplemental marketing salary of \$3,275,000.

A paid annuity is another area form of supplemental salary. Only five percent of the contracts include a paid annuity. The mean (median) supplemental annuity payment is \$128,840 (\$125,000). The head coach is paid this supplemental annuity each year of the contract.

### **3.2.3.1.3 Head Coach Contract Characteristics: General and Salary: Deferred Income**

Another popular feature of many head coach contracts create deferred annuity accounts. Twenty-eight percent of the contracts contain deferred annuity payments, paid either by the university or an athletic association closely affiliated with the university. These accounts are set up and managed by the university and are intended to be an incentive for the head coach to remain at the university. At the end of the deferred annuity payments, the coach is entitled to receive the balance and accrued interest. The mean (median) length of a deferred annuity account is 5.41 (5.00) years. In other words, a typical contract including a deferred annuity account pays five payments. At the end of the five payments the coach is entitled to receive the balance in the account. The



University of New Mexico's head coach contract for Rocky Long provides for the longest deferred annuity account of 11 years. The mean (median) deferred annuity payment is \$163,872 (\$100,000). The highest deferred annuity payment was the University of Oklahoma's Bob Stoops who received yearly annuity payments of \$750,000. These payments began in 2005 and continued until 2008 at which time Bob Stoops was paid the \$3,000,000 in addition to any interest accrued in the account. The lowest deferred annuity payment is Kent State University's Doug Martin who is paid \$10,200 from 2004-2006. The mean (median) balance for a deferred annuity account from 2003-2009 is \$359,205 (\$250,000). Again, the University of Oklahoma's Bob Stoops has the highest deferred annuity balance of \$3,000,000.

#### **3.2.3.1.4 Head Coach Contract Characteristics: General and Salary: Aggregated Salary**

The four remaining variables provide aggregate compensation information from 2003-2009. These aggregate compensation variables are guaranteed compensation, maximum performance bonus, maximum compensation, and guaranteed compensation.

Guaranteed compensation captures the portion of a head coach's contract that he is guaranteed to receive as long as he is employed as the head coach at the beginning of the football season. Guaranteed compensation is calculated as the sum of base salary, other salary, bonuses, supplemental market compensation, and supplemental annuities. The mean (median) guaranteed compensation is \$912,465 (\$697,500). The highest guaranteed compensation is \$3,780,000 for the University of Texas' head coach, Mack Brown. The lowest guaranteed compensation is for the University of Louisiana at

Monroe's head coach, Charlie Weatherbie, whose guaranteed compensation in 2004, 2005, and 2006 was \$75,000.

**Figure 4: Head Coach Guaranteed Compensation**

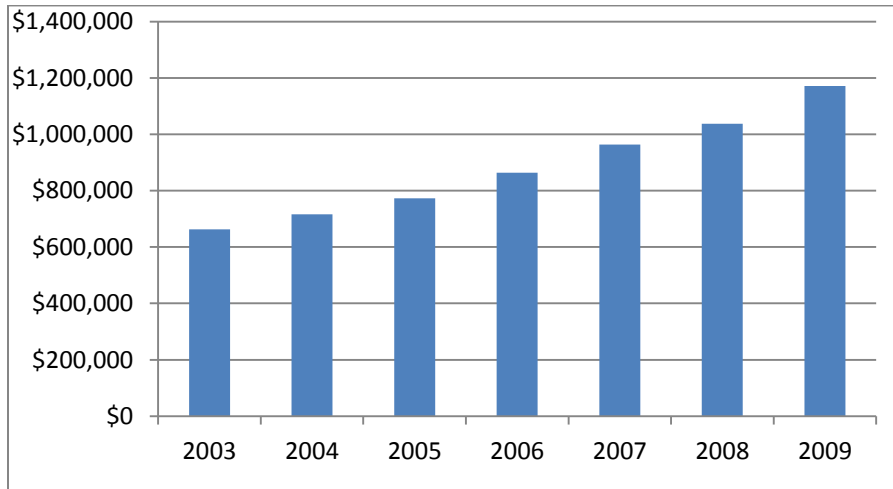
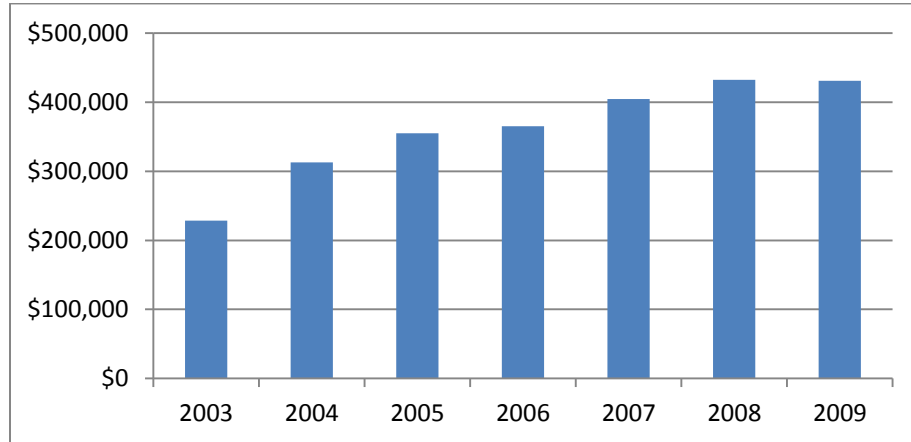


Figure 4 above indicates guaranteed compensation has increased from \$663,419 in 2003 to \$1,171,198 in 2009, representing a total increase of 76.54%.

Maximum performance incentive bonus is determined as the maximum performance compensation the university's head football coach would receive if he were to achieve all his incentives as detailed in the contract. Figure 5 shows the average maximum performance incentive bonus over 2003-2009. In 2003, this value was \$228,386 and increased to \$430,821 in 2009, representing an overall increase of 88.64%. The mean (median) maximum performance bonus in this study is \$350,936 (\$280,000). The highest maximum bonus calculated from contracts over 2003-2009 was University of Arizona's head coach, Dennis Erickson. In 2008, if he achieved all of his performance incentives he would receive a bonus of \$1,722,250. The lowest maximum performance bonus is Eastern Michigan University's head coach, Jeff Genyk. In 2004 and 2005,

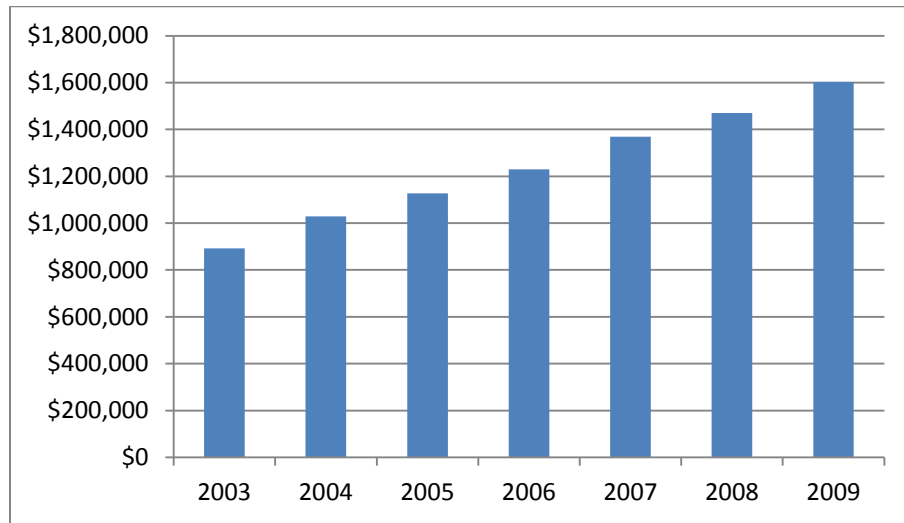
Genyk stands to make an additional \$10,000 if he achieves all of his performance incentives. There are multiple contracts that do not provide any performance incentives.

**Figure 5: Average Maximum Performance Incentive**



Maximum compensation is the sum of guaranteed compensation and maximum performance bonus. This variable indicates the maximum compensation each head coach would earn from guaranteed salary and performance incentives as provided under the contract. The mean (median) maximum compensation in this study is \$1,263,402 (\$1,000,000). The highest maximum compensation is University of Texas' head coach, Mack Brown, whose 2009 contract specifies he could potentially earn up to \$4,630,000. The lowest maximum compensation is the University of Louisiana at Monroe's head coach, Charlie Weatherbie, whose yearly maximum compensation from 2004-2006 was only \$90,000. Figure 6 indicates the average maximum compensation increased from \$891,806 in 2003 to \$1,602,019 in 2009. This represents an 80% increase in the average head football coach's maximum compensation.

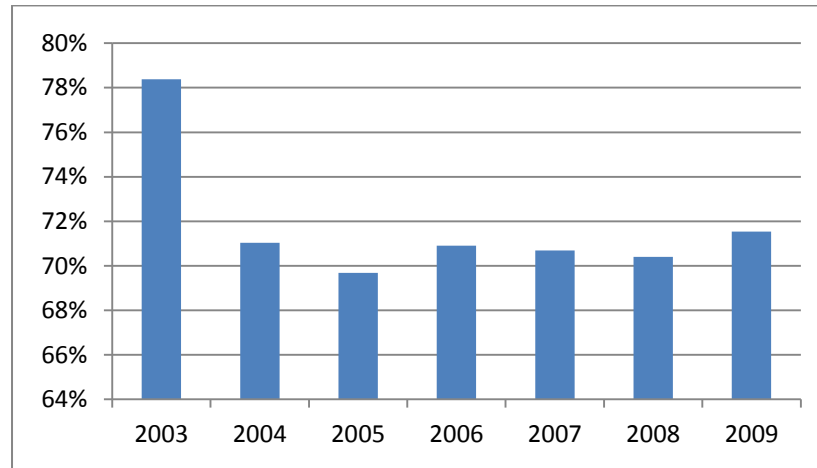
**Figure 6: Average Maximum Compensation**



Another important variable describes the percent of maximum total salary that is guaranteed under the employment agreement. Guaranteed compensation is calculated by dividing guaranteed compensation by maximum compensation. This variable is an indicator of how much of a head coach's contract focuses on performance incentives. The higher the guaranteed compensation, the less incentive a head coach may have to work hard and perform well. The lower the guaranteed compensation the more incentive the head coach will have to increase the performance of the football team. Figure 7 shows the guaranteed compensation from 2003 to 2009. Interestingly, guaranteed compensation fell dramatically from 2003 to 2004. It is uncertain if there was a cause for the fall or if this is due to the small number of observations in 2003. From 2003-2009 the mean (median) guaranteed compensation is 73.65%, (75.13%). There are 32 university head coach contracts where 100% of the compensation is guaranteed. The university head coach contract providing the lowest guaranteed compensation is Clemson

University's Dabo Swinney, who in 2008 and 2009, the contract guaranteed only 20% of his compensation, meaning his contract has the highest performance incentive.

**Figure 7: Guaranteed Compensation**



### **3.2.3.2 Head Coach Contract Characteristics: Performance Incentives**

The previous section specifies a head coach contract contains both guaranteed compensation provisions and performance incentive provisions. Not all university head coach contracts contain performance incentives. Over 93% of the contracts indicate that a portion of a coach's compensation is to be paid in the form of performance incentives. Five percent of the contracts pay over one-half of the compensation in the form of performance incentives. This section describes the various performance incentives contained in head coach contracts as well as the level of the bonuses.

### **3.2.3.2.1 Head Coach Contract Characteristics: Performance Incentives:**

#### **Appearances**

A large portion of performance incentives contained in head coach contracts are tied to a football program appearing in a conference championship game, bowl game, or national championship game. These incentives indicate that appearing in prestigious games is vital to universities and are as important as or more important than winning games. This is not surprising as most bowl games, as well as other prestigious games, pay the university for the appearance, not for winning. A university is allotted additional tickets to sell, thus increasing revenues regardless of the outcome. There are more immediate financial rewards for universities whose football programs appear in a prestigious game.

Out of the 518 employment agreements from 2003-2009, twenty percent provide an incentive paying the coach if the football program appears in the conference championship game. The mean (median) bonus paid for an appearance in a conference championship game is \$49,376 (\$37,500). The University of Colorado's 2008 and 2009 contract with Dan Hawkins allocates the highest incentive of \$150,000 for appearing in the Big 12 conference championship game. Both Ball State University and Eastern Michigan University provide the lowest performance incentive bonus of \$5,000 for appearing in the Midwestern Athletic Conference championship games.

The NCAA considers universities that win at least 6 regular season games as eligible to appear in a post season bowl game. This seems to be a major performance objective for an NCAA Football Bowl Division as 84% of university head coaching

employment agreements contain a performance incentive paying the coach a mean (median) bonus of \$28,286 (\$25,000) for appearing in a post season bowl game. The University of Washington's contract with Steve Sarkisian provides the highest performance incentive of \$150,000 for participation in a post season bowl game. Both Akron University and Ball State University contracts provide the lowest performance incentive of \$2,500 for participation in a post season bowl game. Additionally, 23% of head coach contracts contain an additional performance incentive for appearing in an upper tier bowl game. The upper tier bowl games are determined by each university and are specified in the employment agreement, but stop short of the Bowl Championship Series (BCS), bowls sanctioned by the NCAA FBS as the elite bowl games. The mean (median) performance incentive for appearing in an upper tier bowl is \$30,697 (\$25,000) in addition to the performance incentive bonus paid for a post season bowl appearance. Both the University of Minnesota and the University of Houston provide the highest performance incentive of \$75,000 for appearing in an upper tier bowl game.

In 1998, the NCAA created what is known as the BCS, the elite five bowl games. Bowl games considered to be the BCS bowls are the Orange Bowl in Miami, the Sugar Bowl in New Orleans, the Fiesta Bowl in Phoenix, the Rose Bowl in Pasadena, and the BCS National Championship Bowl<sup>20</sup>. The NCAA recognizes six BCS conferences in which the champions of those conferences automatically qualify for an appearance in one of the five BCS bowls<sup>21</sup>. The teams within the other five non-BCS conferences must be

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<sup>20</sup> The Bowl Championship Series National Championship game is currently on a four year rotation between Miami, New Orleans, Phoenix, and Pasadena,

<sup>21</sup> Currently the automatic qualifying BCS conferences are the Big 12 Conference, the Atlantic Coast Conference, the Southeastern Athletic Conference, the Big 10 Conference, and the PAC-10 Conference.

ranked as a top twelve team according to the BCS ranking system to receive an at large bid to a BCS bowl.

Sixty-four percent of the contracts contain a performance incentive allotting an additional mean (median) bonus of \$58,966 (\$50,000) for appearing in a BCS post season bowl. The University of California provides Jeff Tedford the highest performance bonus of \$300,000. Additionally, 23% of the employment agreements stipulate if the football program appears in the BCS National Championship game, the head coach will receive an additional mean (median) performance bonus of \$72,297 (\$50,000). Both the University of California and the University of Virginia provide the highest performance incentive bonus of \$250,000.

#### **3.2.3.2.2 Head Coach Contract Characteristics: Performance Incentives: Winning**

The previous section discussed the importance of appearing in key games; however, winning is still an important performance indicator. Most head coach contracts include performance incentives that reward a head coach for winning games. Twenty-six percent of employment agreements provide a performance incentive if their football program is recognized as a division champion of their conference. This is usually obtained by holding the best win/loss record against the teams within the conference. If multiple teams tie, then they are often considered as co-champions and the performance incentive bonus is still awarded. The mean (median) performance incentive allotted to division champions within a NCAA FBS conference is \$28,384 (\$21,250). The University of Kentucky, the University of South Carolina, and Georgia Tech University



provide the highest performance incentive for winning a division championship of \$100,000.

Seventy-three percent of contracts contain a performance incentive paying the head coach a bonus if the team wins their conference championship. The mean (median) performance incentive for winning their conference championship is \$50,558 (\$25,000). The highest performance incentive offered for winning a conference championship is \$382,844 paid to Ralph Friedgen at the University of Maryland. Interestingly, this is the only performance incentive bonus in the University of Maryland's employment agreement. This performance incentive is paid in addition to the division championship bonus.

Only 12 percent of the contracts contain a performance incentive for winning a bowl game. The mean (median) bonus paid for winning a bowl game is \$15,562 (\$10,000), with the highest being \$50,000 paid as part of the University of Central Florida's, Iowa State University's, and Georgia Tech University's head coach contracts. Only one percent of the employment agreements contain a performance incentive paying \$25,000 for winning an upper tier bowl. Five percent of head coach contracts contain an additional performance incentive for winning a BCS post season bowl game. The mean (median) performance incentive for winning a BCS post season bowl is \$67,589 (\$50,000). The highest performance incentive for winning a BCS post season bowl game pays \$250,000 to Georgia Tech University's head coach Paul Johnson.

Regarding performance incentives, university head coach contracts focus on game appearances, not winning (one exception is BCS National Championship game).

Winning the national championship is ultimately the goal of a university football program. Thirty-seven percent of the contracts contain a performance incentive for winning the national championship. The mean (median) incentive paid to the head coach for winning the national championship is \$156,872 (\$150,000). The highest bonuses are contained in contracts for Oklahoma State University, the University of Alabama, and the University of Auburn, each paying \$500,000 if their football team wins the national championship.

Numerous contracts contain performance incentives rewarding head coaches winning a predetermined number of games within a single season. The chart below summarizes these game winning incentives.

Winning Games	Percent Contracts with Performance Clause	Mean Incentive	Median Incentive
5	1%	\$2,000	\$2,000
6	5%	\$16,760	\$10,000
7	10%	\$20,343	\$10,000
8	17%	\$15,999	\$10,000
9	19%	\$22,340	\$10,000
10	20%	\$28,304	\$10,000
11	16%	\$33,565	\$10,000
12	12%	\$33,565	\$10,000

Dennis Erickson from Arizona State University tops this category, receiving the highest incentive of \$600,000 for winning his twelfth game of the season.

### **3.2.3.2.3 Head Coach Contract Characteristics: Performance Incentives: Other**

Other performance incentives include national ranking, conference coach of the year, national coach of the year, academic achievement, ticket sales, attendance, as well as a few others.

Thirty-eight percent of the contracts include performance incentives rewarding the head coach based on the football program's final national ranking. The mean (median) national ranking performance incentive is \$69,083 (\$50,000). The highest bonus of \$450,000 is awarded to Mack Brown as part of the University of Texas' 2009 contract.

Forty-one percent of the contracts also contain a personal performance incentive bonus tied to the coach receiving the conference coach of the year award. The mean (median) incentive paid for this award is \$20,036 (\$20,000). The highest performance incentive is \$133,333 as part of University of South Carolina's contract with Steve Spurrior.

Thirty-seven percent of contracts pay an incentive to the head coach for being named the national coach of the year. The NCAA Football Bowl Division universities recognize more than one national coach of the year award; therefore, there may multiple coaches receiving this bonus each year. The two most recognized national coach of the year awards are the Bear Bryant College Football Coach of the Year award, and the Liberty Mutual College Football Coach of the Year award. The mean (median) incentive paid for the national coach of the year award is \$39,241 (\$50,000). The highest incentive

is \$150,000 as part of New Mexico State University's 2009 employment agreement with DeWayne Walker.

On the field performance is not all that universities attempt to maximize. Academic achievement incentives are included in 60 percent of the employment agreements. These academic performance incentive bonuses pay the head coach based on the academic achievement of the student athletes in his football program. Academic achievement is measured by rubrics developed by the NCAA such as graduate retention rate (GRR), cumulative grade point average (GPA), or academic progress rate (APR). This study assumes the university's football program achieves the highest level of academic achievement, therefore maximizing the academic incentive allocated in the head coach's contract. The mean (median) academic achievement bonus is \$53,461 (\$27,353). The highest academic achievement incentive, \$275,000, is part of the Ohio State University's employment agreement with Jim Tressel.

The final variable describes various other performance incentives found within the contracts. This variable includes such items as attendance incentives, game day ticket sale incentives, season ticket sale incentives, incentives rewarding certain conference or rivalry wins, recruiting incentives, incentives for the retention of football recruits, fund raising incentives, among other various incentives. The mean (median) for all other performance incentives is \$113,633 (\$31,000). The highest cumulative total other performance incentives is provided by the University of Kentucky's contract with Rich Brooks, who would be paid \$750,000 if their football team wins eight Southeastern Conference games.

### **3.2.3.3 Head Coach Contract Characteristics: Non-Performance Incentives**

In addition to the guaranteed compensation and performance incentives, the contracts also contain a number of non-performance or perquisite incentives. This section focuses on these non-performance incentives. Due to the wide difference and difficulty in the valuation of these incentives, this study does not focus on the value, but only accounts for the existence of these incentives.

One of the most prevalent non-performance incentives provided in head coach contracts is the use of a late model vehicle for the coach to utilize both for work and for personal needs. Eighty percent of the contracts contain a provision for the use of at least one automobile. Furthermore, 41% of the contracts contain a clause for the use of a second vehicle by the spouse of the head football coach.

Another common non-performance incentive contained in 56% of head coach contracts is a clause providing a country club membership to the head coach and his family to use at their discretion, either for business, for recruiting, or for personal use. There are even a few contracts providing multiple country club memberships.

Twenty percent of head coaching contracts also grant spousal travel. In these contracts, the spouse is able to travel on recruiting trips, to away games, and to postseason bowl games the team may be participating in. A few contracts extend this provision for the entire family; however, for the purpose of this study we have included those with the spousal travel variable.

Twenty-six percent of the contracts provide a stadium suite for use at the head coach's discretion for every home football game. Additionally, 49% of the contracts allocate an allotment of football tickets, again to be used at the head coach's discretion, either for personal use or for business use. The mean (median) ticket allotment under these contracts is 18 (20) tickets with the highest ticket allotment of 50 tickets provided to Mark Mangino, the head coach for the University of Kansas.

These contracts also include provisions allotting tickets to other university sporting events such as men's and women's basketball, baseball, hockey, or all sports passes. Thirty-four contracts have such an allotment. The mean (median) ticket allotment for other university sponsored sports besides football is 6.24 (4). The highest allotment of 30 tickets is provided to Jeff Tedford from the University of California.

Another non-performance incentive, which may appear as a performance incentive, is a ticket allotment to a post season bowl game. If the team is invited to a post season bowl, only 14% of the university head coaching contracts specify an allotment of tickets to the bowl game. This seems to be low. Most coaches may receive some allotment; however, it is not specified within the contract. The mean (median) allotment of tickets to a post season bowl in which the team is participating is 22.66 (16) tickets. The University of Cincinnati's employment agreement allocates the highest allotment of 200 tickets to be utilized by head coach, Brian Kelly. Brian Kelly's allotment is an extreme outlier, and may be due to his contract specifying these tickets represent the total allotment of tickets to the entire football program including those to be used by assistant coach's families, player's families, and anyone else within the football program.

The contracts include a number of other non-performance incentives which have not been described and detailed within this study. For instance, some contracts specify that upgrades will be made in football facilities. Other contracts allot the use of an aircraft to the head coach for recruiting and for personal purposes. Personal use is allocated in terms of flight hours available to the head coach during the contract year. Other contracts provide the head coach with an interest free loan to be used in acquiring a home, tuition waivers for immediate family members, or additional life insurance. All of these non-performance incentives add additional value to the contract. These other perquisites exist in 41% of the employment agreements. The mean (median) number of additional non-performance or perquisite incentive bonuses from 2003-2009 university head coaching employment agreements is 3.42 (3). These non-performance or perquisite incentives are not included in any of the valuations of the compensation as they vary across contracts and one may be valued much differently than another. Therefore, the above section is simply a description of these non-performance incentives and perquisites many head football coaches enjoy as part of their contracts.

#### **3.2.3.4 Head Coach Contract Characteristics: Termination and Buyout**

Similar to corporate executive employment agreements, university head coach contracts contain clauses dealing with termination or buyout of the contract by either the university or by the head football coach. Termination and buyout provisions are separated into three categories: termination with cause, termination without cause, and buyout.

Terminating a head football coach with cause is usually due to specific reasons stated within the university head coach contracts. For instance, there are seven clauses almost uniformly found in all university head coach contracts. These clauses are: violating NCAA rules, violating conference rules, violating university rules, violating employment agreements clauses, committing a criminal act of moral turpitude, death, and long-term disability. The first four (violating NCAA rules, violating conference rules, violating university rules, and violating employment agreement clauses) are included in every employment agreement within this study. Committing a criminal act of moral turpitude was included in 98.65% of the employment agreements. The only employment agreements not containing the aforementioned clause are contracts between Florida State University and Bobby Bowden. His contract is very short and simple perhaps due to his 34 year tenure at Florida State University. Termination with cause due to death is included in 82.59% of the contracts and long-term disability is included in 85.88% of the contracts. Termination with cause enables the university to terminate the contract without further compensation to the head football coach. This includes any payments contained within a deferred income account. Only 16 (3%) of the university head coaching employment agreements specify if a coach is terminated with cause, the university will still pay the balance of the deferred income account.

Other cases of early termination not mentioned above are considered termination without cause. Terminations without cause often occur due to a programs declining performance or differences arising due to personality conflicts. When a head coach is terminated without cause, there is usually a cost to the university detailed in the contract. Termination without cause provisions can be viewed similarly to an option. Essentially,



the contract with a termination without cause provision is an option to call back the contract at a given strike price. Ninety-eight percent of the contracts have a termination without cause provision allowing the university to terminate the head coaching contract (thus terminating the head coach's employment). However, there is a price to exercising this option. The mean (median) payoff or exercise price is \$2,920,854 (\$1,500,000) with the highest exercise price of \$28,000,000 in the 2007 University of Alabama's head coach contract with Nick Saban. As is the case with the University of Alabama's contract, each year the exercise price is reduced in most contracts.

As part of the termination without cause provision, 39% of the employment agreements require the head coach to mitigate the pay off or exercise price by actively seeking other employment opportunities within the athletic labor market. If, or when, he finds other employment, the exercise price for termination without cause will be reduced to only cover the difference between what he would have been compensated under the terminated contract and his compensated under his new contract.

Eighteen percent of the contracts include a provision entitling the head football coach to receive the balance of the deferred income account at the time of termination without cause. Additionally, 18% of the contracts permit the university to reassign the head coach to other duties within the university and continue to pay him his base salary but forgo any other supplemental salaries.

The final termination option typically provided by head coach contracts is controlled by the head coach. Similar to the university's option to terminate the contract without cause, the head football coach has the same option to terminate the university

head coach contract without cause. This is known as a buyout clause. Eighty-seven percent of the contracts in this study contain a buyout clause. Again, there is a cost associated with the exercise of this option by the head coach. Most head coaches opting to exercise this option do so in order to take another more prestigious head coaching job. Therefore, the buyout cost is typically paid for by the head coach's new university. The mean (median) buyout exercise price established by the contracts from 2003-2009 is \$1,037,388 (\$500,000). The highest buyout price, \$13,440,000, is a part of the University of Georgia's contract with Mark Richt. Upon the exercise of this option, the head coach agrees to forfeit any future compensation provided in the contract including any deferred compensation. Only two percent of the contracts contain a provision allowing the head coach to retain the current funds held in his deferred income account.

## CHAPTER 4

### EMPIRICAL RESULTS

The previous chapter provided a detailed discussion and summary statistics of the variables collected as part of this study of university head coach contracts. Chapter 4 examines the determinants of head coaching contracts utilizing univariate, multivariate empirical tests, describes the econometric models used to analyze the contracts, and summarizes the results of these empirical tests.

#### **4.1 Univariate Tests**

This study employs univariate tests to determine whether there is a significant difference between the mean and median values of variables analyzed from university head coach contracts whose maximum compensation is either above or below the median. The results are presented in Table 3. The first test is a simple parametric univariate test. Difference of means and medians tests are run by dividing the sample of contracts into two subgroups, those whose maximum compensation falls below the median of \$1,000,000, referred to as low compensation agreements, and those with maximum compensation above the median of \$1,000,000, referred to as high compensation agreements. Reported t-statistic's provide a two-tailed test of the null hypothesis that the mean values do not differ. The second test is a non-parametric Wilcoxon sign-rank univariate test to test the difference of median tests, again splitting university head coach contracts into two subgroups, low compensation agreements and high compensation agreements. The Wilcoxon sign-rank Z-statistic's provide a two-

tailed test of the null hypothesis, indicating whether the median values do or do not differ.

#### **4.1.1 Univariate Tests: Coach Characteristics**

It is expected that there should be significant differences between head coaches receiving low compensation agreements and those receiving high compensation agreements. This section discusses some of those characteristics.<sup>22</sup>

As shown in Table 3 Panel A, univariate tests indicate head coaches with high compensation have significantly higher university tenure (mean difference of 6.2 years vs. 4.9 years; 1% level) as well as total career experience (mean difference of 11.7 years vs. 8.5 years; 1% level) as a head coach then coaches with low compensation. High compensation coaches also have significantly more university (mean difference of 49 wins vs. 32 wins; 1% level) and career wins (mean difference of 90 wins vs. 54 wins; 1% level). A greater number of wins may be a function of the number of games coached. If this were true it would be reasonable to expect the number of losses for coaches with high compensation to also be greater than low compensation coaches. Interestingly, though high compensation coaches have significantly higher university tenure and career experience, there is not a significant difference in their number of university losses (mean difference of 27 losses vs. 28 losses) in both mean and median tests, and only a slight significance difference for career losses (mean difference of 50 losses vs. 45 losses; 10% level) when using the parametric t-tests. There is however stronger evidence showing high compensation coaches have significantly more career losses than low compensation

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<sup>22</sup> These characteristics exhibit a statistical significance level of at least 10%.

coaches, based on the differences of median values, when utilizing the Wilcoxon sign rank non-parametric test (median difference of 46 losses vs 45 losses; 1% level).

Evidence does indicate that high compensation coaches win more games than low compensation coaches. Results for both university winning percentages (mean difference of 59% vs. 47%; 1% level) and career winning percentages (mean difference of 61% vs. 49%; 1% level) show high compensation coaches have higher winning percentages, both university and career, than low compensation coaches. This is consistent with the hypothesis that as a coach increases performance, as measured by winning football games, his market value and thus his maximum compensation will increase.

Other characteristics significantly different between high compensation coaches and low compensation coaches are past head coach experience and previous NFL football coaching experience. There are significantly more high compensation coaches with previous head coaching experience (mean difference of 51% vs. 35%; 1% level) than low compensation coaches. Additionally there are significantly more high compensation coaches with previous NFL football coaching experience (mean difference of 22% vs. 13%, 1% level). The age of head coaches exhibits mixed results. Parametric t-tests indicate there is not a significant difference between high compensation coaches and low compensation coaches. However the non-parametric Wilcoxon sign rank tests show that age is significantly higher for high compensation coaches than for low compensation coaches (median difference of 52 years versus 50 years; 10% level). A coach's race, whether he voluntarily resigned from his previous coaching position, and whether he was hired from within the university do not exhibit significant differences (at the ten

percent or greater significance level) between high compensation coaches and low compensation coaches.

#### **4.1.2 Univariate Tests: University Characteristics**

Table 3 Panel B1 presents univariate test results for university characteristics. Again it is presumed there are significant differences in the universities with high compensation and those universities with low compensation. During the 2010-2011 football season there have been a number of universities announce that beginning with the 2011-2012 season they will be change conferences. The following changes were announced: the Big-10 Conference will extend from 11 universities 12 with the addition of Nebraska, the Pacific Athletic Conference-10 (PAC-10) will grow from the current 10 to 12 with the addition of the University of Utah, University of Colorado, the Big East added Texas Christian University, and the Mountain West Conference (MWC) lost Brigham Young University, but added Boise State, Fresno State University, and the University of Nevada, and the Western Athletic Conference (WAC) will be adding Texas State University, and University of Texas-San Antonio.<sup>23</sup> The question arises, how would this effect university head coaching? Results from the univariate tests shows there to be a significant difference between conferences for universities with high compensation contracts and universities with low compensation contracts. Universities in the Big 12 Conference, Atlantic Coast Conference (ACC), the Southeastern Conference (SEC), the Big East Conference, the Big-10 Conference, and the Pacific Athletic Conference-10 (PAC-10) have a significantly greater probability (1% level) of having a high

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<sup>23</sup> Both Texas State University and the University of Texas-San Antonio have declared their intentions of upgrading their football programs to the NCAA-FBS.

compensation contract. Universities in Conference USA (CUSA), the Mid-American Conference (MAC), the Mountain West Conference (MWC), the SunBelt Conference, and the Western Athletic Conference (WAC) have a significantly higher probability of having a low compensation contract.

Univariate test results do not show a significant difference between universities with high or low compensation contracts except Universities with high compensation contracts are significantly more likely at the 1% level to lose their head coach to the NFL than universities with low compensation contracts. Sixteen percent of universities with high compensation contracts lose their head coach to the NFL versus seven percent of the universities with low compensation contracts.

Stadium capacity, university endowment and revenues all show significant differences between universities with high or low compensation contracts. Univariate test results indicate universities with high compensation contracts have significantly larger stadium capacities (mean difference of 68,319 vs. 38,406; 1% level) than universities with low compensation contracts. Univariate test results also demonstrate that universities with high compensation contracts have significantly larger endowments, both current endowment (mean difference of \$1,440 million vs. \$310 million; 1% level) and one year lagged endowment (mean difference of \$1,424 million vs. \$291 million; 1% level) than universities with low compensation contracts. Finally, universities with high compensation contracts have significantly larger revenues, both current revenues (mean difference of \$29 million vs. \$8 million; 1% level) and one year lagged revenues (mean

difference of \$27 million vs. \$7 million; 1% level) than universities with low compensation contracts.

#### **4.1.2.1 Univariate Tests: University Characteristics: Game Performance**

Table 3 Panel B2 presents the results for game performance. As has previously been discussed, coaches with high compensation contracts have significantly more university and career wins than coaches with low compensation contracts. Correspondingly, univariate tests confirm universities with high compensation contracts win significantly more games (mean difference of 8 wins vs. 6 wins; 1% level) and lose significantly fewer games (mean difference of 5 losses vs. 7 wins; 1% level) in both the current year, and the previous year. Moreover, universities with high compensation contracts have significantly higher average attendance (mean difference of 63,323 vs. 26,983; 1% level) at their home football games, in both the current year and previous year. This may simply be a function of a previous finding; universities with high compensation contracts have significantly larger stadium capacities. If true, controlling for stadium capacity by determining game attendance as a percent of stadium capacity is essential. Univariate results indicate universities with high compensation contracts have significantly higher attendance as a percentage stadium capacity (mean difference of 92% vs. 68%; 1% level) than universities with low compensation contracts. It is evident from the above univariate results that universities with high compensation contracts exhibit significantly greater game performance than universities with low compensation contracts.



#### **4.1.2.2 Univariate Tests: University Characteristics: Recruiting Performance**

We can assume, holding everything else constant, corporations hiring the best labor talent will have better results than corporations hiring lesser talent. Likewise, we can assume, holding everything else constant, universities recruiting the best football talent will perform better than universities recruiting lesser talent. Under this assumption, universities should be willing to offer head football coaches who recruit better talent, higher compensation as compared to head football coaches who recruit lesser talent. Results of univariate test (see Table 3 Panel B3) confirm this assumption and find universities with high compensation contracts are significantly (1% level) better at recruiting talent, regardless of measure, than universities offering low compensation contracts.

#### **4.1.3 Univariate Tests: Contract Characteristics**

A key question of concern in this study concerns the makeup of NCAA FBS head coach's contracts. The first two critical dimensions of remuneration policies identified by Jensen, Murphy, and Wruck (2004) are to understand and know the total benefits associated with the job or position including the costs and benefits of non-pecuniary aspects of the job, and what is the composition of the remuneration package. This section examines the difference of mean and median results of head coach contract variables and the results are presented in Table 3 Panels C1 through C4.

#### **4.1.3.1 Univariate Tests: Contract Characteristics: General and Salary**

It should be noted that there is a significant difference (5% level) between the number of high compensation contracts in 2009 and the number of low compensation contracts. This is most likely due to the overall increase in head coach compensation over the period examined. In a market where compensation is increasing, there should be a greater number of high compensation agreements in the later years. In years 2003-2008 there is no significant difference between the number of high and low compensation contracts.

Does the length of the contract differ between high and low compensation contracts? Univariate tests indicate both the term (mean difference of 7 years vs. 6 years; 1% level) and the number of years remaining (mean difference of 5 years vs. 4 years; 1% level) on the agreement is significantly longer for high compensation agreements than for low compensation agreements. When a coach increases his performance, the university will increase compensation and length of the employment agreement to secure his services for a longer period of time. Additionally, as the coach increases his performance he may seek to renegotiate his agreement increasing both compensation and length.

It can be anticipated that results of univariate tests will indicate a significant difference in salary levels between high and low compensation contracts. Results indicate a significant difference in base salary (mean difference of \$361,051 vs. \$211,537; 1% level), a significant difference in other salary (mean difference of \$451,326 vs. \$61,155; 1% level), and a significant difference in bonuses (mean difference of

\$324,022 vs. \$75,020; 10% level) paid between high compensation agreements and low compensation agreements.

Outside income opportunities are an intricate part of head coach contracts. Univariate test results indicate outside income opportunities are significantly (5% level) more prominent in low compensation contracts than in high compensation contracts. This presents an opportunity for universities offering low compensation contracts to remain competitive by allowing head coaches to increase their income through outside income opportunities.

Univariate test results show a significant difference in the level of the supplemental marketing compensation (mean difference of \$1,062,386 vs. \$180,682; 1% level) present between high and low compensation contracts. These supplemental marketing payments compensate the head coach for various media, marketing, endorsement, and public relation opportunities and responsibilities and represent a large portion of compensation.

Deferred income accounts are a means by which a university can reward a head coach for completing the term of the contract. Univariate test results find deferred income accounts are present in significantly more high compensation contract than low compensation contract (mean difference of 32% vs. 22%; 5% level). Furthermore the terms of these deferred income accounts are also significantly different in the following manner: yearly deferred annuity payments (\$238,007 vs. \$58,855; 1% level) are significantly higher and balances (\$500,804 vs. \$178,218; 1% level) are significantly

higher for high compensation versus low compensation contract. Univariate test results find the term of deferred income payments is not significantly different.

Univariate test results indicate guaranteed salary (mean difference of \$1,478,342 vs. \$355,262; 1% level) and maximum performance incentive bonus (mean difference of \$579,211 vs. \$126,160; 1% level) are both significantly different between high and low compensation contracts. Guaranteed salary and maximum performance incentive bonus are both determinants of maximum compensation, thus it should be expected that high compensation contracts exhibit higher levels of guaranteed salary, as well as higher levels of maximum performance incentive bonuses, than low compensation contracts.

Univariate test results also show the guaranteed compensation under the contract is significantly different (mean difference of 71% vs. 77%; 1% level) between high compensation contracts than low compensation contracts. Interestingly, low compensation contracts exhibit a significantly higher guaranteed compensation as compared to high compensation contracts.

#### **4.1.3.2 Univariate Tests: Contract Characteristics: Performance Incentives**

This section examines the univariate tests for performance incentives within university head coaching contracts to determine whether there are significant differences between high compensation and low compensation contracts (see Table 3 Panel C2).

A key group of performance incentives compensate the head coach for appearing in prestigious games such as bowl and championship games. For university head coaching contracts from 2003-2009, univariate test results indicate high compensation contracts pay significantly higher bonuses for appearing in a conference championship

game (mean difference of \$65,390 vs. \$15,405; 1% level) and/or qualifying for and appearing in an NCAA sanctioned bowl game (mean difference of \$37,458 vs. \$17,402; 1% level) than low compensation contracts.

As discussed in Section 3.2.3.2.1, many of these contracts contain an additional performance incentive for appearing in an upper tier bowl game. When contracts contain such an incentive, univariate results are inconsistent as to whether it is significantly different between high and low compensation contracts. Parametric t-test indicate there is not a significant difference but the Wilcoxon sign rank non-parametric test indicates a significantly higher bonus is paid for appearances in upper tier bowl games (mean difference of \$31,922 vs. \$26,218; 1% level) between high and low compensation contracts.

According to univariate test results, high compensation contracts pay significantly higher bonuses for an appearance in a Bowl Championship Series (BCS) bowl (mean difference of \$63,034 vs. \$52,368; 10% level) than low compensation contracts. However, the univariate results are mixed regarding the incentive for appearing in the national championship game. The parametric t-test indicates a significantly higher bonus paid in high compensation contracts for appearing in the national championship game (mean difference of \$75,833 vs. \$53,684; 10% level), but the Wilcoxon sign rank non-parametric test indicates no significant difference.

Section 3.2.3.2.2 shows evidence that winning prestigious games is not as important as appearing in these key prestigious games. Univariate results indicate high compensation contracts provide significantly higher mean incentives for winning division championship games (\$49,573 vs. \$7,768; 1% level), conference championship games

(\$74,080 vs. \$18,710; 1% level), bowl games (\$37,083 vs. \$10,595; 1% level), BCS bowl games (\$82,895 vs. \$35,278; 10% level), and national championship games (\$172,580 vs. \$82,146; 1% level) than offered by low compensation contracts.<sup>24</sup>

Performance incentives are not only paid for winning key games, but many contracts also provide performance incentives for winning a specified number of games each season. Univariate test results conclude that when contracts contain incentives for winning games, the bonus is found to be significantly higher (1% level) for the high compensation contracts than for low compensation contracts.

Mean performance incentives such as national ranking (\$108,847 vs. \$25,971; 1% level), conference coach of the year (\$47,153 vs. \$11,812; 1% level), national coach of the year (\$47,153 vs. \$23,661; 1% level), academic achievement (\$76,194 vs. \$20,782; 1% level) and other performance incentives (mean difference of \$202,078 vs. \$46,561; 1% level) are all found to be significantly higher for high versus low compensation contracts.

#### **4.1.3.3 Univariate Tests: Head Coach Contract Characteristics: Non-Performance Incentives**

Non-performance incentives (perquisites) are another crucial aspect of NCAA FBS university head coach contracts. Valuing non-performance incentives can be problematic; therefore, this study determines whether there is a significant difference in the probability the non-performance incentive exists in high versus low compensation employment contracts.

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<sup>24</sup> Winning Bowl Championship Series games are significant at a 10% and 5% level, where as winning division championship games, conference championship games, bowl games, and national championship games are significant at a 1% level.

As shown in Table 3 Panel C3 test results indicate high compensation contracts are more likely to contain provisions providing the head coach one automobile (mean difference of 86% vs. 74%; 1% level), a second automobile for their spouse (mean difference of 63% vs. 19%; 1% level), country club memberships (mean difference of 62% vs. 50%; 1% level), spouse or family travel privileges (mean difference of 4% vs. 17%; 10% level), and the use of a football stadium suite (mean difference of 34% vs. 18%; 1% level).

Univariate tests do not indicate a significant difference in the number of home football game tickets or bowl game tickets for high compensation contracts versus low compensation contracts. However, univariate tests do indicate high compensation contracts allocate more tickets to non-football sporting events (mean difference of 7 tickets vs. 5 tickets; 5% level) than low compensation contracts.

Finally, test results indicate high compensation employment contracts contain a greater total number of perquisite provisions (4.2 vs. 2.7) than low compensation contracts.

#### **4.1.3.4 Univariate Tests: Head Coach Contract Characteristics: Termination and Buyout**

Univariate tests conclude there is not a significant difference in the conditions where universities may terminate the agreement with cause between high and low compensation contracts. Three exceptions to the previous findings include: termination for cause due to criminal turpitude, termination with cause due to long term disability, and retention of deferred income funds upon termination for cause.

As shown in Table 3 Panel C4 the cost of terminating the contracts without just

cause (mean difference of \$4.814 million vs. \$1.006 million; 1% level), and the cost of buying out the remaining term of the contracts (mean difference of \$1.635 million vs. \$0.442 million; 1% level) are significantly 1% level higher in high compensation versus low compensation contracts.

Univariate test results further show it is significantly more likely for high compensation contracts to allow the head coach to retain deferred income funds upon the termination without cause (5% level) or the buyout of the contract (10% level). However, univariate test results find it significantly more likely that low compensation contracts allow the university the right of reassignment (5% level) than high compensation contracts. Finally, univariate tests do not find a significant difference between the existence of buyout and mitigation provisions between high compensation contracts and low compensation contracts.

#### **4.2 Multivariate Tests**

Previous discussion has centered on univariate tests examining significant differences between university head coach contracts characteristics whose maximum compensation is above and below the median of \$1,000,000. This section discusses the multivariate test models that are utilized to determine which variables are significant determinants of maximum compensation as well as the guaranteed compensation as delineated in the university head coach contracts.



Models one through four, examine the significant variables explaining maximum compensation and models five and six examine guaranteed compensation.

#### **4.2.1 Multivariate Tests: Discussion of Variables**

Compensation literature from the fields of finance and organizational management are utilized to develop models estimating the determinants of maximum compensation. These models aid our understanding of which factors increase a head coach's maximum compensation. The following section discusses the variables and presents the models used in determining maximum compensation and guaranteed compensation as predicated by university head coach contracts.

##### **4.2.1.1 Multivariate Tests: Discussion of Variables: Size**

Previous literature indicates that both firm size and market size are important determinant of compensation.<sup>25</sup> Studies of public corporations by Ciscell and Carroll (1980), Murphy (1985), Dunlevy (1985), and Jensen and Murphy (1990) show firm size is positively related to the compensation level of a chief executive officer. Scully (1974, 1989) determines that market size plays a significant part in determining team revenues but is not significant when included in a regression of MLB player salaries. Scully, Jones and Walsh (1988) find mixed results for the significance of a market size effect in their study of salary determinates of NHL players. Burgar and Walters (2003) show that teams in large markets value a player six times more than teams in small markets, leading to the

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<sup>25</sup> Compensation studies controlling for firm size as a determinant of executive compensation use total assets to measure the size of the firm. Many studies examining sports compensation and the value of a sports franchise use measures such as Metropolitan Statistical Areas (MSA) to measure the size of the market.

determination that market size has a significant effect on compensation. Finally, Humphreys and Mondello (2008), also find market size increases team value.

It is reasonable to assume that the larger the university, the more they can pay their head football coach. One indicator of size is university enrollment. The above studies indicate a variable for size should be included in a model of maximum compensation. Many corporate finance studies use variables such as total assets, sales, and revenues to proxy for firm size. The question now becomes, “What is the appropriate determinant of market size for NCAA FBS universities?”

Athletic studies, focusing on determinants of professional sports franchise values, use Metropolitan Statistical Areas (MSA) to measure market size. In terms of college sports, this variable may not be an accurate measure of market size. Many large universities are located in small communities, while small universities are located in large metropolitan areas. For example, Texas A&M University, the United States 6th largest university with total enrollment of 48,702 students,<sup>26</sup> is located in College Station-Bryan, Texas MSA which has a current population of 212,268.<sup>27</sup> San Diego State University has an enrollment of 32,817<sup>28</sup> and is located in the San Diego, Carlsbad, San Marcos, CA MSA, which has a population of 3,053,793.<sup>29</sup> While San Diego MSA has a larger

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<sup>26</sup> Texas A&M University enrollment information was collected from Texas A&M University’s Enrollment Profile Fall 2007. This can be found at <http://www.tamu.edu/oisp/reports/ep/epfa2009.pdf>.

<sup>27</sup> Population information for the College Station, Bryan TX metropolitan statistical area was collected from the U.S. Census Bureau’s Annual Estimates of the Population of Metropolitan and Metropolitan Statistical Area for July 1, 2007. This data can be found at <http://www.census.gov/popest/metro/CBSA-est2009-annual.html>.

<sup>28</sup> This enrollment information is collected from San Diego State University’s Fall 2009 Enrollment Summary found at [http://asir.sdsu.edu/app/reports/enrollsum/all\\_enrollsum\\_094.pdf?CFID=472037&CFTOKEN=56840489](http://asir.sdsu.edu/app/reports/enrollsum/all_enrollsum_094.pdf?CFID=472037&CFTOKEN=56840489).

<sup>29</sup> Population information for the San Diego, Carlsbad, San Marcos, CA metropolitan statistical area was collected from the U.S. Census Bureau’s Annual Estimates of the Population of Metropolitan and

population, they also have more football sports programs, such as the NFL's San Diego Chargers, University of Southern California, and University of Los Angeles.

Additionally, MSA information does not control for organizational identification effect of university alumni living outside of the MSA.<sup>30</sup> Similar to organizational identification model of alumni loyalty, university sports fans also exhibit a form organizational identification loyalty. Collegiate sports fans are not necessarily alumni of any university yet they pledge their allegiance similar to the alumni of the university, therefore measuring market size using MSA as a proxy does not account for alumni and non-alumni supporters outside of the MSA.

Endowment, stadium capacity, and revenue are also potential proxies for market size. Total firm assets are used when measuring firm size; similarly, university endowment can be used to measure the size of the university. Endowment measures the financial contributions supporters of a particular university make toward growing the goals of the university. Alumni and non-alumni, regardless of location, can support their university of choice by making a contribution to the university's endowment. Furthermore, while this measure does not measure the number of supporters, it does measure their relative level of support. There are different levels of support. There may be a supporter who watches every game on TV but does not go to any of the games, and they may buy university licensed attire to show support but do not contribute to the

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Metropolitan Statistical Area for July 1, 2007. This data can be found at <http://www.census.gov/popest/metro/CBSA-est2009-annual.html>.

<sup>30</sup> Organizational management studies examine a model of organizational identification which measures the loyalty of alumni to the university in which they attended. "Alumni and their alma mater: A partial test of the reformulated model of organizational identification," Mael and Ashworth (1992) define organizational identification as "a perceived oneness with an organization and the experience of the organization's successes and failures as one's own."

university's endowment. On the other hand, there may be a supporter who not only purchases season tickets and attends every game but also makes additional contributions in order to get access to premium seats or perhaps even a suite. These supporters also tend to give generously to a university's endowment. One disadvantage of utilizing endowment as an indicator of market size is that a university's endowment is used to support academics, buildings, and athletics, not simply football. Therefore, universities with large endowments do not necessarily have large football programs. However, universities with large endowments that have small football programs tend to be private and are not included in this study. Therefore, this mitigates this disadvantage and does not create a bias in the analysis.

Stadium size is also a potential indicator of a university football program's market size. Universities with larger football markets may find it profitable to build bigger stadiums in order to sell more tickets; therefore, stadium size should be positively correlated with market size. However, some schools share use of stadiums with professional sports, such as the University of Arizona, and some utilize municipal stadiums such as the University of Southern California and the University of Alabama-Birmingham. The size of these stadiums are not necessarily good indicators of university football program's market sizes.

Revenue is the only common measure of size utilized by both firms and university programs. Revenue generated by the football program is another possible indicator of a university football program's market size. Universities may have large stadiums, but may not be able to sell all available seats; therefore stadium size may lead to an

overestimation of a university football program's market size. Universities having large football program markets should expect to see a larger number of tickets sold, a larger amount of officially licensed apparel purchased, and more games televised. All of the preceding factors lead to an increase in university football revenues. One potential disadvantage of utilizing football generated revenues is that this size measure is also an indication of performance. This dilemma is also addressed by Jensen and Murphy (1990) and Murphy (1985, 1986) and is alleviated by dropping size from their set of regressors. When a university's football program increases performance in terms of winning football games, revenues should increase relative to an increase in ticket sales, apparel sales and media coverage.

When including a size regressor, multiple proxies for size are tested to determine whether results are robust to the choice of proxy. When size is used as a regressor in modeling for maximum compensation, it is expected to have a positive and significant effect.

#### **4.2.1.2 Multivariate Tests: Discussion of Variables: Performance**

Jensen and Murphy (1990) and Murphy (1985, 1986) have shown performance to be a significant determinant of compensation. Additionally, Mirrlees (1976), Holmstrom (1979), Lazear and Rosen (1981), and Grossman and Hart (1983) confirm agency costs are minimized by relating compensation to performance. Alexander and Kern (2004), Scully (1974, 1989), Burger and Walters (2003), and Dobson and Goddard (1998) further show performance to be a significant determinant of sports franchise values.

Performance can be broad and envelope many different aspects, but for purposes of this

study, game performance, coaching performance, and recruiting performance are variables utilized to measure performance.

Instinctively, a higher performing university football program, as measured by an increase in the number of wins, will produce more revenues and therefore increase the programs value. Therefore, a university seeking to increase the value of their football program should seek to increase the number of wins. This has been shown by Alexander and Kern (2004), Scully (1974, 1989), Burger and Walters (2003), and Dobson and Goddard (1998). Alexander and Kern (2004) illustrates there is a significant positive relationship between game performance and the value of a NFL franchise. Additional studies by Scully (1974, 1989), Burger and Walters (2003), Dobson and Goddard (1998) further indicate game performance is positively correlated with franchise value. Clement and McCormick (1989) and Hadley et.al (2000) show coaching performance and efficiency is a significant factor and positively related to performance. In fact, Hadley et.al (2000), demonstrates on average an efficient NFL coach can account for four to five additional wins per season. In a season with roughly 16 games (not including playoffs), an efficient coach can account for upwards of 25% of the team's wins. This is a significant increase in performance, and further evidence that a quality coach is a significant factor in game performance. It is therefore expected that as game performance improves, maximum compensation should also increase. As a result, game performance variables are included in the model for maximum compensation. Game performance variables used are revenues, average attendance, and coach's career winning

percentage.<sup>31</sup>

Closely related to game performance is a head football coach's recruiting performance. DuMond et al. (2008) presents a detailed review of the literature on the importance of recruiting. NCAA FBS head football coaches are the key recruiters for their respective universities. Their purpose is to recruit the best and most talented group of players possible, thus increasing their ability to win football games. Talent has been shown to be a key indicator of a team's performance. Many studies, such as Berri (1999), Hadley et al (2000), and the 2002 book by Bill James entitled "Win Shares," have measured a player's contribution to team performance in number of wins. These studies show the better the player is, the more he contributes to the performance of the team. Due to the findings of these studies, it is expected that as recruiting performance improves so should the maximum compensation.

One difference between this study and previously mentioned studies is that they focus on player contribution in professional sports markets and determine the level of compensation the player should receive based on his contribution to the performance of the team. Due to NCAA rules, acquiring talent for university athletics is different in many ways to acquiring talent in professional athletics as well as for corporate organizations. Universities are only allowed to offer four year scholarships providing food, lodging and education to student athletes. No other monetary compensation or perquisite compensation can be paid to any student athlete.

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<sup>31</sup> University winning percentage, previous season wins, and current season wins were also utilized to test for significance, but results are not included in this study.

Dumond, Lynch and Platania (2008) develop a probit model to predict the school a football recruit is most likely to attend. Their model indicates a recruit's decision to attend a particular university is a combination of distance from home, program performance, and academic rank. However, Dumond, Lynch and Platania (2008) do not differentiate recruits based on their level of talent. It can be argued the higher a recruit's talent, the higher the probability he plays professional football beyond college, and therefore the recruit may place more emphasis on quality coaching when determining his choice of university. It is therefore essential that a coach has the ability to recruit the most talented athletes without offering any compensation beyond a four year scholarship. He must be able to sell his program based on the university's academics, past performance, and coaching ability.

Recruiting is one area where agency problems arise. In an attempt to attract more talented recruits, coaches often violate recruiting rules, such as contacting players outside of official recruiting periods, providing perquisites that are not afforded normal students, or in some cases compensating the recruit with large sums of money. University athletic programs are often placed on probation by the NCAA for recruiting violations executed by their athletic coaches. These are often minor violations leading to the suspension of a particular player for a few games or a season, reduction of one or two scholarships, or a reduction in the number of official recruiting visits a university can utilize. However, some violations are more serious in nature, which lead to serious penalties including elimination of the program.<sup>32</sup> Recently, the University of Southern California (USC) was

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<sup>32</sup> In 1987, the NCAA handed down the harshest punishment in the history of NCAA football to a university for recruiting violations. Southern Methodist University's football program was given the



found guilty of serious recruiting violations in their football, basketball and tennis programs. As a result of these violations, the NCAA has vacated all football wins in which Reggie Bush participated in (including the 2004 BCS National Championship game), banned USC from participating in post season bowl games for the next two years (essentially removing all chances at a national championship), and revoked 10 scholarships for each of the next three recruiting classes (30 total scholarships). Pundits have indicated that the ramifications of these violations will continue to be felt at USC for years to come. This perennial powerhouse football program may have been relegated to the middle of the pack for many years. It is interesting to note that Pete Carroll, the head coach during the period in which the violations occurred, exercised a buyout clause from his contract and is now the head coach for the NFL's Seattle Seahawks. It is apparent these recruiting violations assisted Pete Carroll in achieving his personal goals, but were detrimental to the goals of USC's program.

To better understand the effect of recruiting performance, three measures are examined: current year ranking, current year average stars, and the current year points. Lagged rank, lagged average stars, and lagged points as well as moving average for two, three and four years are also calculated. All of these measures are found to be highly correlated; therefore, current year rank, average stars and points are used to as measure of recruiting performance.

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“death penalty” and not allowed to participate in NCAA sanctioned football for the 1987 season. Additionally, SMU's football program received a two year ban from bowl appearances and television, a limit of seven game for the 2008 season (all road games), loss of three assistant coaching positions for two years, and the loss of 55 scholarships over four years. From 1980-1985 Southern Methodist University was the highest winning program in all of Division I-A football.

#### **Section 4.2.1.3 Multivariate Tests: Discussion of Variables: Coaching Tenure**

Experience or tenure of a head coach is a factor which should be considered when modeling maximum compensation. An increase in the head coach's total career performance and university career is, the longer the length of his career tenure and university tenure will be. Studies such as Jones and Walsh (1988), and Hadley et al (2000) show tenure to be an indicator of head coaching efficiency and experience, and find tenure is positively correlated with performance. Career tenure and university tenure variables are included in the models and are expected to be positively correlated with maximum compensation.

#### **Section 4.2.1.4 Multivariate Tests: Discussion of Variables: Succession**

Previous studies indicate that managerial succession effects team performance; therefore, succession variables are included in the models. Grusky (1963, 1964) found that managers are more likely dismissed when teams performed poorly, yet upon dismissal team performance deteriorates even further. Audas, Dobson, and Goddard (2002) find teams who lose their manager mid-season under-perform over the remainder of the season. Gamson and Scotch (1964), FizeL and D'Itri (1997), FizeL et. Al. (1990), Dyl (1988) and many other studies find significant changes in performance due to managerial succession.

Circumstances surrounding the replacement of the previous head coach could potentially have a bearing on the level of maximum compensation the new head coach receives. There are many circumstances leading a university to search for a new head

coach. The university may replace the previous head coach due to poor performance or due to a violation of the university head coach contract. The head football coach may have exercised the buyout option either to retire from coaching or to accept another position. These reasons may lead to significant changes in maximum compensation as outlined in the future head coach's contract.

A circumstance where a university decides to exercise the option to terminate the contract of their previous head coach without cause may signal their intent to improve the performance of the university football program. If this is the case, the university will seek a head coach they feel will improve the performance of their football program. Therefore, the total maximum compensation in the new contract is expected to increase.

If the head coach exercises the option to buy out the remaining term of the contract, this does not signal the university's intent to improve the performance of their football program. In this situation, the university has a decision to make regarding the direction they take their football program. Many universities are content with their football program's current level of performance. A university attempting to maintain the status quo will hire a head football coach on par with the previous head coach and maximum compensation under the new university head coaching employment agreement is expected to remain the same. However, a university intent on improving their football program will seek to replace the previous head coach with a coach they feel will improve the performance of their football program. In this case, the maximum compensation under the new university head coach's contract should increase. If the head coach exercises the buyout option, it can be anticipated the university will increase the incentives and clauses, including maximum compensation, to increase the probability of

the new head coach remaining with the university.

Dummy variables are utilized in the models to control for circumstances of the succession event including whether the university exercised the option to fire the head coach or if the head coach exercised the option to buy out the remaining term of the employment agreement, whether the previous head coach became the head coach for another university, and whether the previous head coach left to coach in the NFL.

Circumstances surrounding the university's hiring of the new head football coach could also have a bearing on the level of maximum compensation offered in the new university head coach contract and may also take various forms. The university may seek to hire an experienced head coach who is currently the head coach of another football program. If this is the case, the university must lure the head coach from his current position, leading to an increase in maximum compensation.

The university may also hire a new head coach with previous head coaching experience, that was fired from his previous university. Under this circumstance no assumptions are made in regarding to the reason for the firing, whether for poor performance, or for violating terms of the head coach contract. Such was the case with Boston College's head coach, Jeff Jagadowski. Boston College fired Jagadowski for interviewing for the head football coach vacancy with the NFL's New York Jets. According to the athletic director, this was in violation of the university head coaching employment agreement which indicated all interviews must be pre-approved by the university. In this case, the head coach, Jeff Jagadowski, asked permission, and was denied permission, but he interviewed for the open position anyway. This eventually led

to his dismissal at Boston College.

Finally, the university may also hire a new head coach with previous head coaching experience in the NFL. There are a number of university head football coaches who have been head coaches the NFL. Regardless of the circumstances behind the decision to return to coaching at the collegiate level, NFL head coaching experience is a strong signal of quality. If this truly is a signal of quality, it is expected this should significantly increase the level of maximum compensation in the university head coach contracts.

The models utilize dummy variables to control for circumstances that potentially have a bearing on the level of total maximum compensation offered in the new employment agreement. These dummy variables control for hiring a new head coach with previous head coaching experience, hiring a new head coach away from the same position at another university, having a new head coach that was fired or voluntarily resigned from his previous employment, and hiring a coach that has previous experience as a head coach in the NFL.

#### **4.2.2 Multivariate Tests: Research Hypotheses**

Based on the preceding discussion, the following research hypotheses are tested as a part of this study.

*Hypothesis I:* A university head coach's maximum compensation, as detailed in his contract, is positively related to a head football coach's tenure.<sup>33</sup>

*Hypothesis II:* A university head coach's guaranteed compensation, as detailed in his contract, is positively related to the head football coach's tenure.

*Hypothesis III:* A university head coach's maximum compensation, as detailed in his contract, is positively related to the performance of the university football program.

*Hypothesis IV:* A university head coach's guaranteed compensation, as detailed in his contract, is positively related to the performance of the university football program.

*Hypothesis V:* A university head coach's maximum compensation, as detailed in his contract, is positively related to the size of the university.

*Hypothesis VI:* A university head coach's guaranteed compensation, as detailed in his contract, is positively related to the size of the university.

*Hypothesis VII:* A head football coach's maximum compensation is positively related to whether he voluntarily resigned from his previous position (either from another university or the NFL) to become the university's head coach.

*Hypothesis VIII:* A new head football coach's maximum compensation is hypothesized to be higher if the university enters the search for a new head coach due to the voluntary resignation of their previous head coach.

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<sup>33</sup> Note: Maximum compensation is measured as the sum of guaranteed salary and the maximum bonus from performance incentives.

### 4.2.3 Multivariate Tests: Maximum Compensation: Models and Results

Using variables described in the previous sections, eight models are developed to test the determinants of maximum compensation.

#### 4.2.3.1 Multivariate Tests: Maximum Compensation: Models and Results: Models

##### 1.1 and 1.2

Models 1.1 and 1.2 examine the determinants of head football coach compensation. Section 4.2.1 describes the variables that are tested to determine whether they are significant determinants of a head coach's compensation.

Models 1.1 and 1.2 are defined as

$$\begin{aligned} comp_{i,t} = & \beta_0 + \beta_1 rev_{i,t} + \beta_2 rec_{i,t} + \beta_4 career_{i,t} + \beta_5 perwin_{i,t} + \\ & \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \end{aligned} \quad (1.1)$$

$$\begin{aligned} comp_{i,t} = & \beta_0 + \beta_1 rev_{i,t-1} + \beta_2 rec_{i,t-1} + \beta_4 career_{i,t} + \beta_5 perwin_{i,t} + \\ & \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \end{aligned} \quad (1.2)$$

where *comp* is the dependent variable describing the level of maximum compensation for an NCAA FBS head coach, *rev* is the university's current year football revenues and measures both size and game performance, *rec* is the university's current year recruiting points and measures recruiting performance, *career* is the length of the head football coach's career, *perwin* is the head football coach's career winning percentage, *X1* is a dummy variable controlling whether the previous head coach was fired or voluntarily resigned, *X2* is a dummy variable controlling whether the previous head coach left to be the head coach of another university, *X3* is a dummy variable controlling whether the previous head coach left to coach in the NFL, *X4* is a dummy variable controlling

whether the current head coach was hired from within the university,  $X5$  is a dummy variable controlling whether the current coach was fired or voluntarily retired from his previous position,  $X6$  is a dummy variable controlling whether the current coach has previous head coaching experience, and  $X7$  is a dummy variable controlling whether the current head coach has previous NFL head coaching experience.

The results for Model 1.1 and 1.2 can be seen in Table 4.1. Model 1.1 uses current year university football revenues as a measure of both size and performance, and current year recruiting points as a measure of recruiting performance. Multiple studies sight potential endogeneity and simultaneity issues when modeling compensation. These arguments can be observed when performance is a determinant of compensation as is the case with head coach contracts.

Model 1.2 seeks to eliminate potential endogeneity between the performance variables and maximum compensation by using lagged revenues and lagged recruiting points. Using lagged performance variables should reduce the potential endogeneity, as the assumption can be made that last year's revenues and last year's recruiting performance is not a function of this year's maximum compensation. Attempts were made to use instrumental variable methodology similar to Adams and Ferriera (2007) but a strong instrumental variable could not be determined.

Model 1.1 and 1.2 are estimated using both random effects and fixed effects to control for endogeneity due to potential omitted variables. Results are included in Table 4.1. Hausman tests are run to determine whether there is a significant difference in the random effects estimates and fixed effects estimates. When there is not a significant difference, the random effect estimates are used as they are most efficient and powerful.



If a significant difference exists between the estimates, fixed effects should be used to reduce omitted variable bias, keeping in mind fixed effects is not efficient.

Model 1.1 indicates random effect estimates are both accurate and efficient while Model 1.2 indicates fixed effects estimates are necessary to reduce the bias due to omitted variables. Results of Model 1.1 and Model 1.2 indicate that maximum compensation, determined by a head coach's contract, is positively and significantly (1% level) related to university revenues and lagged revenues. This evidence supports Hypotheses III and V which states, maximum compensation is positively related to both size and game performance. Maximum compensation is not significantly related to recruiting performance as measured by recruiting points (Model 1.1); but is significant and positively (10% level) related using lagged recruiting points (Model 1.2). Model 1.1 indicates that maximum compensation is significant and positively related to career tenure (10% level) as well as career winning percentage (1% level). Model 1.2 estimates are determined using fixed effects which are not as powerful as random effects. Therefore, it is not surprising to find in Model 1.2 maximum compensation is not significantly related to career tenure but is positive and significantly related to career winning percentage (5% level). Model 1.1 results are consistent with Hypothesis I and Hypothesis III stating that maximum compensation is positively related to both career tenure and performance. Models 1.1 and 1.2 both find that maximum compensation is not significantly related to most succession events, previous head coaching experience, or being hired from within the university. Model 1.1 and 1.2 do find support for Hypothesis IX (i.e. The models find an increase in maximum compensation in the current coach's

compensation if the former head football coach exercises the option to buy out the remaining term of the employment agreement and become the head coach in the NFL).

The results for Model 1.1 indicate the following adjustments to maximum compensation. For every \$1,000 increase in revenues, maximum compensation increases \$31.76. As head coaching career tenure increases by one year and career winning percentage increases by one percent, maximum compensation increase \$9,786 and \$7,073, respectively. Lastly, if the university's previous head coach exercises his buyout option and becomes an NFL head coach, the maximum compensation paid to his successor increases \$228,199.

Results for Model 1.2 indicate the following adjustments to maximum compensation. For every \$1,000 increase in lagged revenues, maximum compensation increases \$35.64. Further, for every one percent increase in a head coach's career winning percent, maximum compensation increases \$6,967. Model 1.2 further finds that as lagged recruiting points increase by 1 point, maximum compensation decreases \$96.19. Finally, if the university's previous head coach exercises his buyout option and becomes an NFL head coach, the maximum compensation paid to his successor increases \$305,910.

#### **4.2.3.2 Multivariate Tests: Maximum Compensation: Models and Results: Models 2.1 and 2.2**

Models 2.1 and 2.2 replaces the revenue variables with university's endowment, one year lagged endowment, attendance and lagged attendance.<sup>34</sup>

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<sup>34</sup> As previously indicated, revenues can be a measure for size and for game performance. Models 1.1 and 1.2, determine that maximum compensation is positively related to revenues and one year lagged revenues. The question then becomes, "Is this a size effect, performance effect or perhaps both." In an attempt to

Model 2.1 and 2.2 are defined as

$$comp_{i,t} = \beta_0 + \beta_1 endow_{i,t} + \beta_2 att_{i,t} + \beta_3 rec_{i,t-1} + \beta_4 career_{i,t} + \beta_5 perwin_{i,t} + \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \quad (2.1)$$

$$comp_{i,t} = \beta_0 + \beta_1 endow_{i,t-1} + \beta_2 att_{i,t-1} + \beta_3 rec_{i,t-1} + \beta_4 career_{i,t} + \beta_5 perwin_{i,t} + \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \quad (2.2)$$

where *endow* is the university's current endowment, *att* is the university's current average game attendance and all other variables are the same as for Models 1.1 and 1.2.

Lagged performance variables are utilized in Models 2.1 and 2.2 in an attempt to minimize endogeneity, as well as using both random effects and fixed effects. Results of both estimations are included in Table 4.2.

Both Model 2.1 and Model 2.2 indicate fixed effects estimates are not necessary and random effect estimates are both accurate and efficient based on the Hausman tests. Results explaining the significance of size as a determinant of maximum compensation are inconsistent between Models 2.1 and 2.2. Model 2.1 indicates maximum compensation is not significantly related to current year endowment whereas Model 2.2 supports Hypothesis V indicating maximum compensation is positively and significantly (1% level) related to size, as measured by one year lagged endowment. Models 2.1 and 2.2 results show maximum compensation is positively and significantly (1% level) related to game performance, as measured by attendance and lagged attendance. These findings are consistent with Hypothesis III. Again, Models 2.1 and 2.2 indicate maximum compensation is not significantly related to recruiting performance, as

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differentiate between size effect and performance, revenues and one year lagged revenues are replaced with endowment and one year lagged endowment, to measure size effect, and attendance and one year lagged attendance, to measure performance effect.

measured by a university's current recruiting points and lagged recruiting points. Model 2.1 does not find maximum compensation to be significantly related to career winning percent, but finds that maximum compensation is positive and significantly related to career tenure. Model 2.2 does establish that maximum compensation is positive and significantly related to career head coaching tenure as well as career winning percent, sustaining the theories behind Hypothesis I and III. The models find no significant relationship between maximum compensation and previous head coaching experience, both collegiately and professionally. However, both models indicate maximum compensation is negative and significantly related to the head coach being hired from within the university football program. The models do not uncover any significant evidence surrounding the university entering the market for a new head football coach and compensation. These findings are inconsistent with Hypothesis VIII and IX.

The results for Model 2.1 indicate the following. For every one person increase in attendance, maximum compensation increases \$21.90. Further, as career tenure increases by one year, maximum compensation increases \$13,280. Lastly, if the university hires from within, maximum compensation decreases \$142,406.

The results for Model 2.2 indicate the following: for every \$1,000 increase in lagged university endowment, maximum compensation increases \$0.13. For every one person increase in lagged attendance, maximum compensation increases \$22.47. As career tenure increases one year and career winning percent increases one percent, maximum compensation increases \$11,958 and \$5,684, respectively. Model 2.2 also finds that if the university hires from within, maximum compensation will decrease \$194,153.

### 4.2.3.3 Multivariate Tests: Maximum Compensation: Models and Results: Models 3.1 and 3.2

Possible multicollinearity issues exist regarding recruiting measurement.

Variables capturing recruiting performance are subjective opinions of those employed by Rivals. Many believe because Rivals business is selling information and subscriptions to university football fans, perhaps results are biased toward larger more popular schools. Favorable results for large universities with large fan support can possibly lead to increased subscriptions and increased revenues. The high correlation between recruiting rank and attendance or revenues lends support to the multicollinearity argument. However, it is impossible to determine whether they provide an unbiased opinion on recruiting, or if in fact it is biased. In order to remove this potential bias, Models 3.1 and 3.2 drop recruiting performance from the analysis.

Models 3.1 and 3.2 are defined as

$$comp_{i,t} = \beta_0 + \beta_1 rev_{i,t} + \beta_2 career_{i,t} + \beta_3 perwin_{i,t} + \beta_m XI_{i,1} + \beta_n X2_{i,t} + \beta_p X3_{i,t} + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \quad (3.1)$$

$$comp_{i,t} = \beta_0 + \beta_1 rev_{i,t-1} + \beta_2 career_{i,t} + \beta_3 perwin_{i,t} + \beta_m XI_{i,1} + \beta_n X2_{i,t} + \beta_p X3_{i,t} + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \quad (3.2)$$

where all the variables are consistent with those defined in Models 1.1 and 1.2.

The results from Models 3.1 and 3.2 are presented in Table 4.3. Similar to previous models, lagged performance variables as well as random effects and fixed effects are again utilized to minimize potential endogeneity issues. Hausman tests are again run to determine if there is a significant difference between the random effects

estimates and fixed effects estimates. The results of these tests indicate that random effect estimates are both accurate and efficient.

Models 3.1 and 3.2 also use current year university football revenues as a measure of both size and performance, and current year recruiting points as a measure of recruiting performance. The results indicate maximum compensation is positively (1% significance levels) and significantly related to revenues and lagged revenues. This lends further credence to Hypotheses I and III, which state maximum compensation is positively related to university size and performance. Model 3.1 indicates maximum compensation is not significantly related to career head coaching tenure but maximum compensation is positively and significantly (1% significance level) related to career winning percentage. Model 3.2 specifies that maximum compensation is positively and significantly related (1% significance level) to career tenure and career winning percentage, further supporting Hypotheses I and III. The models uncover no significant relationship between previous head coaching experience and maximum compensation. Model 3.1 does not find maximum compensation to be significantly related to the university hiring a new head coach from within the university, yet Model 3.2 finds a significant and negative relationship (10% significance level). Model 3.1 also supports Hypothesis VIII by finding that maximum compensation is expected to increase when the previous head football coach exercises his option to buy out the remaining term of his employment agreement. Model 3.2 does not find any significance surrounding the university entering the market for a new head football coach.

Results for Model 3.1 indicate the following economic relationships. For every \$1,000 increase in revenues, maximum compensation increases \$32.66. As a head

coach's career winning percent increases by one percent, maximum compensation is expected to increase \$7,256. Lastly, if the university's previous head coach exercises his buyout option to become an NFL head coach, maximum compensation paid to his successor is expected to increase by \$232,865.

The results for Model 3.2 indicate the following: for every \$1,000 increase in lagged football revenues, maximum compensation increases \$28.12. As career experience increases one year and career winning percentage increases by one percent, maximum compensation is expected to increase \$7,256 and \$7,159, respectively. The results also indicate that if the university hires from within to fill the vacant head coaching position, maximum compensation decreases \$125,104.

#### **4.2.3.4 Multivariate Tests: Maximum Compensation: Models and Results: Models 4.1 and 4.2**

Models 4.1 and 4.2 separate size and performance effects as well as drop recruiting performance to remove potential multicollinearity issues.

Models 4.1 and 4.2 are defined as

$$\begin{aligned} \text{comp}_{i,t} = & \beta_0 + \beta_1 \text{endow}_{i,t} + \beta_2 \text{att}_{i,t} + \beta_3 \text{career}_{i,t} + \beta_4 \text{perwin}_{i,t} + \\ & \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \end{aligned} \quad (4.1)$$

$$\begin{aligned} \text{comp}_{i,t} = & \beta_0 + \beta_1 \text{endow}_{i,t-1} + \beta_2 \text{att}_{i,t-1} + \beta_3 \text{career}_{i,t} + \beta_4 \text{perwin}_{i,t} + \\ & \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \end{aligned} \quad (4.2)$$

where all the variables are consistent with those defined in Models 2.1 and 2.2.

Both Model 4.1 and Model 4.2 indicate random effect estimates are both accurate and efficient. Similar to Models 2.1 and 2.2, the significance of size is inconsistent between Models 4.1 and 4.2. Model 4.1 indicates maximum compensation is not

significantly related to current endowment whereas Model 4.2 is consistent with Hypothesis III, indicating maximum compensation is positively and significantly (1% significance level) related to lagged endowment, a measure of size. Results illuminating maximum compensation's relationship to game performance are consistent with Hypothesis V. Model 4.1 indicates maximum compensation is positively and significantly related to current attendance, lagged attendance and career tenure (1% significance level), but does not find maximum compensation to be significantly related to career winning percent. However, Model 4.2 does establish that maximum compensation is positively and significantly related to career head tenure and career winning percent, again supporting Hypothesis I and III. Models 4.1 and 4.2 find maximum compensation is not significantly related to previous head coaching experience, but is negatively and significantly related to whether the university hired from within the football program. Furthermore, these models do not find any significant relationship surrounding maximum compensation and why the university entered the market for a new head football coach.

The results for Model 4.1 indicate the following adjustments to maximum compensation. For every increase in attendance, maximum compensation increases \$23.86, and as career tenure increases by one year, maximum compensation increases \$12,889. Lastly, if the university hires their new head coach from within, maximum compensation is expected to decrease by \$154,720.

The results for Model 4.2 indicate the following adjustments to the average maximum compensation. For every \$1,000 increase in lagged university endowment, the maximum compensation increases roughly \$0.13. Additionally, for every increase in



lagged attendance, maximum compensation increases \$22.32. As career experience and career winning percentage increase, maximum compensation increases \$16,610 and \$5,432, respectively. Model 4.2 also finds if the university hires a new head coach from within, the current football program maximum compensation will decrease \$194,582.

To summarize the results for Models 1 through 4, the multivariate models utilized to ascertain the significant factors determining maximum compensation provided by university head coaching employment agreements demonstrates strong evidence that maximum compensation is a function of size, performance, career tenure, career winning percent, and hiring the new head coach from within the university.

#### **4.2.4 Multivariate Tests: Guaranteed Compensation: Model and Results**

The previous section examined the determinants of maximum compensation. Maximum compensation is classified as either guaranteed compensation or performance based incentives. This section discusses the results of the multivariate tests examining which variables determine the level of guaranteed compensation. A key objective of a head coach's contract is to create a compensation package that aligns the goals of the principle and the agent, thus minimizing agency costs. Studies by Jensen and Murphy (1990), Harder (1992), Brown (1994) Mehran (1995), and Berri and Krautmann (2006) examine the effects incentives have on performance. The models examining the determinants of a university head coaching contract's guaranteed compensation utilize many of the same variables as the models employed to estimate the determinants of maximum compensation, including size, performance, tenure, and succession variables.

#### 4.2.4.1 Multivariate Tests: Guaranteed Compensation: Model and Results: Models 5.1 and 5.2

Using many of the same variables as the first four models, Models 5.1 and 5.2 are developed to estimate the significant determinants of guaranteed compensation.

Models 5.1 and 5.2 are defined as

$$\begin{aligned} guar_{i,t} = & \beta_0 + \beta_1 rev_{i,t} + \beta_2 rec_{i,t} + \beta_3 hcage_{i,t} + \beta_4 univtenure_{i,t} \\ & + \beta_5 perwin_{i,t} + \beta_6 win_{i,t-1} + \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} \\ & + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \end{aligned} \quad (5.1)$$

$$\begin{aligned} guar_{i,t} = & \beta_0 + \beta_1 rev_{i,t-1} + \beta_2 rec_{i,t-1} + \beta_3 hcage_{i,t} + \beta_4 univtenure_{i,t} \\ & + \beta_5 perwin_{i,t} + \beta_6 win_{i,t-1} + \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} \\ & + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \end{aligned} \quad (5.2)$$

where *univtenure* is the length of a coach's tenure as the university's head football coach, *win<sub>i,t-1</sub>* is the number of wins for the football program in the previous season, *hcage* is the coach's age – career tenure, and all other variables are consistent with those defined in previous models. Similar methods are used to control for endogeneity and simultaneity as in the previous models for Models 5.1 and 5.2.

Table 5.1 presents the results for Model 5.1 and 5.2. The results indicate that fixed effects estimates are not necessary and random effect estimates are both accurate and efficient and that guaranteed compensation is not significantly related to current revenues. These results are inconsistent with Hypothesis IV and VI, indicating that a coach's guaranteed compensation is not related to size or performance as measured by current revenues or lagged revenues. Furthermore, Model 5.1 indicates guaranteed compensation is not significantly related to recruiting performance, but conversely Model

5.2 finds evidence that guaranteed compensation is positively and significantly (1% level) related to lagged recruiting performance. Both models also reveal the following: guaranteed compensation is positive and significantly (1% and 10% levels for the models, respectively) related to head coaching age, guaranteed compensation is positive and significantly (1% level) related to university tenure, guaranteed compensation is positive and significantly related to career winning percentage (1% level and 5% level), and guaranteed compensation is not significantly related to previous head coaching experience. Tenure results are consistent with Hypothesis II and winning percent results support Hypothesis IV. The models uncover evidence that guaranteed compensation is negative and significantly (1% level) related to whether the university hires their new head coach from within the football program, but guaranteed compensation is not significantly related to circumstances leading the university to enter the market for a new head football coach.

The results for Model 5.1 indicate the following adjustments to guaranteed compensation. As head coaching age increases, guaranteed compensation increases on average 0.33%. As university tenure increases, guaranteed compensation increases 0.59% and career winning percentage increases, guaranteed compensation increases 0.27%. Finally, if the new head coach is hired from within the current football program, guaranteed compensation decreases by 10.37%.

Results for Model 5.2 can be interpreted as follows. For every one percent increase in lagged recruiting performance, guaranteed compensation increases by 0.003%. Further as head coaching age increases by one year, guaranteed compensation increases 0.20% and as university tenure increases by one year, guaranteed compensation

increases 0.71%. Additionally, Model 5.2 indicates as career winning percent increases by one percent, the guaranteed compensation will increase 0.19%. Finally, if the new head coach is hired from within the current football program, guaranteed compensation decreases by 9.91%.

#### 4.2.4.2 Multivariate Tests: Guaranteed Compensation: Model and Results: Models 6.1 and 6.2

Models 6.1 and 6.2 replace revenues and one year lagged revenues with university endowment, attendance, lagged endowment, and lagged attendance in order to separately measure size effects and performance effects. Models 6.1 and 6.2 control for endogeneity and simultaneity and are defined as

$$\begin{aligned} guar_{i,t} = & \beta_0 + \beta_1 endow_{i,t} + \beta_2 att_{i,t} + \beta_3 rec_{i,t} + \beta_4 hcage_{i,t} + \beta_4 univtenure_{i,t} \quad (6.1) \\ & + \beta_5 perwin_{i,t} + \beta_6 win_{i,t-1} + \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} \\ & + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \end{aligned}$$

$$\begin{aligned} guar_{i,t} = & \beta_0 + \beta_1 endow_{i,t-1} + \beta_2 att_{i,t-1} + \beta_3 rec_{i,t-1} + \beta_4 hcage_{i,t} + \beta_4 univtenure_{i,t} \quad (6.2) \\ & + \beta_5 perwin_{i,t} + \beta_6 win_{i,t-1} + \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} \\ & + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \end{aligned}$$

where all variables are the consistent with previous models.

Models 6.1 and 6.2 indicate fixed effects estimates are not necessary and random effect estimates are both accurate and efficient. The results indicate that guaranteed compensation is not significantly related to endowment, attendance, lagged endowment, and lagged attendance, which do not support Hypothesis VI and Hypothesis IV.

Furthermore, both models designate that guaranteed compensation is not significantly related to recruiting performance and lagged recruiting performance. Model 6.1 indicates that guaranteed compensation is positive and significantly related (10% level) to head

coaching age, yet Model 6.2 indicates no significant relationship. Moreover, both models provide evidence that guaranteed compensation is positive and significantly related (1% level) to university tenure, as well as career winning percentage, at a 5% level of significance. Both models also show that guaranteed compensation is not significantly related to a head coach's previous employment except for when a new head coach is hired from within the university, in which guaranteed compensation is shown to be negative and significant (1% level). The models also indicate that guaranteed compensation is related to circumstances surrounding a university's search for a new head coach. Guaranteed compensation is found to be negative and significantly (1% level and 10% level) related to the previous head coach exercising his buyout option and voluntarily resigning as the university's head coach. Tenure results are consistent with Hypothesis II, winning percentage results support Hypothesis IV, and buyout results support Hypothesis VIII.

The results for Model 6.1 can be interpreted in the following ways. As head coaching age increases by one year, guaranteed compensation will increase by 0.20%; as university tenure increases by one year, guaranteed compensation also increases 0.75%; and as a head coach's career winning percentage increases by one percent, guaranteed compensation increases by 0.19%. Model 6.1 also shows strong evidence indicating if the previous head coach exercises his buyout option, there is a 3.15% point reduction in guaranteed compensation in the new employment agreement. Finally, if the new coach is hired from within the university's football program, guaranteed compensation decreases by 9.20%.

Results for Model 6.2 also indicate the following findings. As university tenure increases, the guaranteed compensation increases by 0.81% and as career winning percentage increases by one percent, guaranteed compensation increases 0.17%. The results also show that when the previous head coach exercises his buyout option, this leads to a 3.24% reduction in guaranteed compensation. Finally, if the university replaces the previous head coach with someone from within the university's football program, guaranteed compensation decreases by 9.80%.

#### 4.2.4.3 Multivariate Tests: Guaranteed Compensation: Model and Results: Models 7.1 and 7.2

Similar to Models 3.1 and 3.2, recruiting variables are removed from Models 7.1 and 7.2. Models 7.1 and 7.2 are also developed to estimate the significant determinants of guaranteed compensation and use variables from the first four models. The models use university football revenues as a measure of size and performance, as well as current year recruiting points as a measure of recruiting performance. Possible endogeneity and spontaneity concerns are mitigated by running both random and fixed effects as well as utilizing lagged performance variables.

Models 7.1 and 7.2 are defined as

$$\begin{aligned} guar_{i,t} = & \beta_0 + \beta_1 rev_{i,t} + \beta_2 comp_{i,t} + \beta_3 careertenure_{i,t} + \beta_4 univtenure_{i,t} \\ & + \beta_5 perwin_{i,t} + \beta_6 win_{i,t-1} + \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} \\ & + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \end{aligned} \quad (7.1)$$

$$\begin{aligned} guar_{i,t} = & \beta_0 + \beta_1 rev_{i,t-1} + \beta_2 comp_{i,t} + \beta_3 careertenure_{i,t} + \beta_4 univtenure_{i,t} \\ & + \beta_5 perwin_{i,t} + \beta_6 win_{i,t-1} + \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} + \\ & \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \end{aligned} \quad (7.2)$$

where all variables are consistent with those defined in previous models. Results for Models 7.1 and 7.2 are found in Table 5.3.

Hausman test results indicate the fixed effects estimates for the models are not necessary and random effect estimates are both accurate and efficient. Both models reveal the following: guaranteed compensation is positive and significantly (1% and 5% levels, respectively) related to head coaching age, university tenure is positively and significantly (1% level) related, and positive and significantly (1% level) related to career winning percentage. Guaranteed compensation was not found to be significantly related to previous head coaching experience, but the models do show evidence that guaranteed compensation is negative and significantly related to whether the new head coach is hired from within the university's current football program. The models fail to provide evidence suggesting guaranteed compensation is significantly related to circumstances surrounding the university entering the market for a new head football coach. Tenure results are consistent with Hypothesis II and winning percentage results support Hypothesis IV.

Results for Model 7.1 indicate the following adjustments to guaranteed compensation provided by university head coaching contracts. As head coaching age increases by one year, guaranteed compensation will also increase by 0.39%; as university tenure increases by one year, guaranteed compensation increases 0.56%; and as career winning percentage increases by one percent, guaranteed compensation will increase by 0.29%. Lastly, if the university hires their new head coach from within the current university football program, guaranteed compensation under the new head coach's contract will decrease 10.97%.

The results for Model 7.2 can be interpreted in the following manner. As head coaching age increases by one year, guaranteed compensation decreases 0.25%; as university tenure increases by one year, guaranteed compensation increases 0.67%; and as the career winning percentage increases by one percent, guaranteed compensation increases 0.21%. Finally, if the university hires their new head coach from within the current university football program, guaranteed compensation under the new head coach's contract will decrease 10.07%.

#### 4.2.4.4 Multivariate Tests: Guaranteed Compensation: Model and Results:

##### Models 8.1 and 8.2

Models 8.1 and 8.2 replace revenues and one year lagged revenues with endowment, one year lagged endowment, attendance, and lagged attendance in order to separately measure size and performance. Models 8.1 and 8.2 control for endogeneity and simultaneity and are defined as

$$\begin{aligned} guar_{i,t} = & \beta_0 + \beta_1 endow_{i,t} + \beta_2 att_{i,t} + \beta_3 comp_{i,t} + \beta_4 careertenure_{i,t} + \beta_5 univtenure_{i,t} \\ & + \beta_6 perwin_{i,t} + \beta_7 win_{i,t-1} + \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} \\ & + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \end{aligned} \quad (8.1)$$

$$\begin{aligned} guar_{i,t} = & \beta_0 + \beta_1 endow_{i,t-1} + \beta_2 att_{i,t-1} + \beta_3 comp_{i,t} + \beta_4 careertenure_{i,t} + \beta_5 univtenure_{i,t} \\ & + \beta_6 perwin_{i,t} + \beta_7 win_{i,t-1} + \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} \\ & + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \end{aligned} \quad (8.2)$$

where all variables are the consistent with previous models.

The models indicate fixed effects estimates are not necessary and random effect estimates are both accurate and efficient. Results from both models indicate that guaranteed compensation is not significantly related to endowment, attendance, lagged endowment, and lagged attendance. These results do not support Hypothesis VI and



Hypothesis IV. Furthermore, Model 8.1 indicates that guaranteed compensation is positive and significantly related (10% level) to head coaching age, however this result in Model 8.2 is not significant. University tenure and career winning percentage are both significantly and positively related to guaranteed compensation in both models. Both models also show that guaranteed compensation is not significantly related to a head coach's previous employment except for when a new head coach is hired from within the university, where guaranteed compensation is shown to be negative and significantly (1% level) related. Both models also indicate that guaranteed compensation is related to circumstances surrounding a university's search for a new head coach. Guaranteed compensation is found to be negative and significantly (1% level and 10% level) related to the previous head coach exercising his buyout option and voluntarily resigning as the university's head coach. Tenure results are consistent with Hypothesis II, winning percentage results support Hypothesis IV, and buyout results support Hypothesis VIII.

The results for Model 8.1 can be interpreted as follows: as head coaching age increases, guaranteed compensation decreases 0.23%, as university tenure increases, guaranteed compensation increases 0.72%, as career winning percentage increases then guaranteed compensation increases 0.20%, and finally, if the new head coach is hired from within the university's football program, guaranteed compensation decreases 9.57%.

Results for Model 8.2 indicate the following findings. As university tenure increases, guaranteed compensation increases 0.76%, as career winning percentage increases, guaranteed compensation increase by 0.18%, and if the new head coach is

hired from within the university's football program, guaranteed compensation decreases 9.79%.

*Summary for all models:* Overall, the results for all models demonstrate strong evidence that guaranteed compensation is a function of performance (Hypothesis IV and Hypothesis II), university tenure, career winning percentage (Hypothesis IV), and whether the university hired from within. There is no consistent evidence to indicate that guaranteed compensation is a function of size (Hypothesis VI), previous experience (Hypothesis VIII), and the succession of the previous head coach (Hypothesis IX).

## CHAPTER 5

### CONCLUSIONS AND RECOMMENDATIONS

This dissertation examined the contracts for NCAA FBS head football coaches in order to gain insight and understanding into the determinants of maximum compensation and guaranteed compensation. The results of this study of head football coach's contracts should also shed light on some of the possible determinants of corporate executive compensation. Next, each hypothesis is restated and a summary of the empirical findings is provided for key variables.

#### **5.1 Conclusions: Tenure**

*Hypothesis I:* A university head coach's maximum compensation, as detailed in his contract, is positively related to a head football coach's tenure.<sup>35</sup>

The results of the univariate test support the premise of Hypothesis I. Univariate test results determine there is a significant difference (1% level) for both the length of a NCAA Football Bowl Division head football coach's career tenure as well as his university tenure, between high compensation agreements and low compensation agreements.

Results of multivariate tests also find evidence to support Hypothesis I. Models 1.1 and 3.1 indicate maximum compensation is not significantly related to a head coach's career tenure. However there are potential endogeneity or simultaneity issues when using

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<sup>35</sup> Note: Maximum compensation is measured as the sum of guaranteed salary and the maximum bonus from performance incentives.

current year performance variables. Models 1.2 and 3.2 correct for this potential endogeneity issue by using one year lagged performance variables. After correcting for the potential endogeneity, Model 1.2 indicates that maximum compensation is not significantly related to career tenure; however, Model 3.2 does indicate maximum compensation is positive and significantly related to career tenure. Models 2 and 4 results find maximum compensation to be positive and significantly related to career tenure. Though not reported in this study these results are robust to the use of university tenure.

The above results provide sufficient evidence to support Hypothesis I suggesting maximum compensation is positive and significantly related to a head coach's career tenure.

*Hypothesis II:* A university head coach's guaranteed compensation, as detailed in his contract, is positively related to the head football coach's tenure.

Multivariate results from Models 5 through 8 all show strong significance for the university tenure variable. From this we can conclude that guaranteed compensation is positive and significantly related to a head coach's tenure. Intuition would suggest, as a head coach increases performance in the eyes of the university and the eyes of his profession (as signaled by the length of his career and tenure at the university), the less uncertainty the university and profession will have about his future performance; therefore, they do not need to provide as many incentive bonuses to insure his continued performance.

## 5.2 Conclusions: Performance

*Hypothesis III:* A university head coach's maximum compensation, as detailed in his contract, is positively related to the performance of the university football program.

Univariate test results show a significant difference between the coach's university winning percentage, career winning percentage, number of career wins, recruiting points and average attendance, between high compensation contracts and low compensation contracts. These results are consistent with the foundation of Hypothesis III: as university football program and head coach performance increases, head coaching maximum compensation as detailed within the contract will also increase.

Multivariate tests results lend further evidence that maximum compensation is positively related to an increase in university football program performance. As a university's football program increases performance there should be an accompanying increase in the head coach's maximum compensation. Models 1.1, 1.2, 3.1 and 3.2 indicate maximum compensation is positively and significantly related to revenue and lagged revenue, both measures of performance. Model 2.1, 2.2, 4.1, and 4.2 indicate maximum compensation is positively and significantly related to attendance and lagged attendance, also measures of performance. Additionally, maximum compensation is found to be consistently significant and positively related to career winning percentage, another performance indicator. Again these findings support the premise of Hypothesis III, that an increase in the performance of the university football program and the head coach leads to an increase in the maximum compensation of a head coach's contract. Replacing career winning percentage with university winning percentage produced

similar results; concluding results are robust to the use of career winning percentage or university winning percentage.

Recruiting has been shown to be important to the performance of both a university's football program and the head football coach; therefore, recruiting variables are included in Models 1.1, 1.2, 2.1, and 2.2. However, measurements of recruiting performance introduce potential biases and therefore are eliminated in Models 3.1, 3.2, 4.1, and 4.2. Results of Models 1.1, 1.2, 2.1 and 2.2 indicate maximum compensation is not significantly related to recruiting performance, as measured by recruiting points. Robustness tests, utilizing average stars as well as rank yielded similar results.

Maximum compensation was found to be significantly related to all performance variables, with the exception of recruiting. Results support the foundation of Hypothesis III, that maximum compensation university football program and head coach performance is positively related to, as measured by revenue, lagged revenue, attendance, lagged attendance, and head coach's career winning percentage,.

*Hypothesis IV:* A university head coach's guaranteed compensation, as detailed in his contract, is positively related to the performance of the university football program.

Multivariate tests results conclude that guaranteed compensation is not significantly related to the performance of a university's football program. More specifically results of models 5.1, 5.2, 7.1, and 7.2 demonstrate guaranteed compensation is not significantly related to performance as measured by revenues and lagged revenues. Models 5.1 and 7.1 indicate performance as measured by current revenues is not a

significant determinant of a head coaching employment agreement's guaranteed compensation. Revenues measure both size effects and performance effects. Models 6.1, 6.2, 8.1, and 8.2 separate size and performance effects by utilizing endowment and lagged endowment as measures of size, while attendance and lagged attendance measure performance. When size and performance effects are separated, as in Models 6.1, 6.2, 8.1, and 8.2, results show that guaranteed compensation is not significantly related to performance as measured by attendance.

Recruiting performance yields varied results. Only Model 5.2 indicates guaranteed compensation is significantly related to the lagged recruiting performance. Models 5.1, 6.1, and 6.2 all indicate recruiting performance guaranteed compensation is not significantly related to recruiting and lagged recruiting performance.

General results show a contract's guaranteed compensation is not significantly related to revenues, lagged revenues, attendance, lagged attendance, recruiting and lagged recruiting. These results do not support the underpinning of Hypothesis IV. Further research into the relationship between guaranteed compensation and performance should be implemented.

### **5.3 Conclusions: Size**

*Hypothesis V:* A university head coach's maximum compensation, as detailed in his contract, is positively related to the size of the university.

Stadium capacity, endowment, lagged endowment, revenues, and lagged revenues are all indicators of the university size. Univariate test results show there is a positive

and significant difference between the university's stadium capacity, endowment, lagged endowment, revenues, and lagged revenues between high compensation agreements and low compensation agreements. These results are consistent with the premise of Hypothesis V, stating a head coach's maximum compensation is a significantly related to university size.

Multivariate models test the significance of size utilizing the variables -- revenues, lagged revenues, endowment, and lagged endowment. Models 1.1, 1.2, 3.1, and 3.2 utilize revenues as a proxy for size. These models demonstrate maximum compensation is consistently found to be positive and significantly related to revenues and lagged revenues. Models 2.1, 2.2, 4.1, and 4.2 utilize endowment and lagged endowment as proxies for size. Results for Models 2.1 and 4.1 indicate maximum compensation is not significantly related to endowment; however, Models 2.2 and 4.2 indicate maximum compensation is both positively and significantly related to lagged endowment. Mixed results may be the consequence of endogeneity between endowment and maximum compensation. Lagged endowment diminishes this endogeneity issue.

Results from models 1.1, 1.2, 2.2, 3.1, 3.2, and 4.2 are consistent with the premise of Hypothesis V that maximum compensation is positively related to university size, suggesting the larger the university, the higher the head coach's maximum compensation.

*Hypothesis VI:* A university head coach's guaranteed compensation, as detailed in his contract, is positively related to the size of the university.



Multivariate models again test the relationship between size and guaranteed compensation, using revenues, lagged revenues, endowment, and lagged endowment as proxies for size. Models 5.1, 5.2, 7.1 and 7.2 find guaranteed compensation is not significantly related to revenue and lagged revenue. Models 6.1, 6.2, 8.1, and 8.2 replace revenues and lagged revenues with endowment and lagged endowment as proxies for size. Results for Models 6.1, 6.2, and 8.1, 8.2 indicate that guaranteed compensation is not significantly related to endowment and lagged endowment. However, results for Model 8.2 indicate that guaranteed compensation is negative and significantly related to endowment and lagged endowment.

The multivariate model results are not sufficient to support Hypothesis VI suggesting guaranteed compensation is significantly related to university size.

#### **5.4 Conclusions: Succession**

*Hypothesis VII:* A head football coach's maximum compensation is positively related to whether he voluntarily resigned from his previous position (either from another university or the NFL) to become the university's head coach.

Univariate and multivariate test results do not contain sufficient evidence to support the premise that maximum compensation is significantly related to whether a head coach voluntarily resigns from their previous position or whether he was terminated. Thus, the results do not support the premise of Hypothesis VII.

*Hypothesis VIII: A new head football coach's maximum compensation is positively related to whether the university enters the search for a new head coach due to the voluntary resignation of their previous head coach.*

Univariate and multivariate test results do not contain sufficient evidence to support the premise that maximum compensation is significantly related to whether the university entered the labor market for a new head coach due to the voluntary resignation of the previous head coach or whether the university terminated the previous head coach's contract, thus not supporting Hypothesis VIII.

### **5.5 Conclusions: Other**

An additional finding from this dissertation is that when a university hires a new head coach from within the existing football program, there is a significant savings to the university both in terms of maximum compensation and also a reduction of the guaranteed compensation. Each model consistently finds maximum compensation and guaranteed compensation are negative and significantly related to a university hiring their new head coach from within the existing football program.

A further finding indicates that head coaching experience is a significant determinant of a head coach's maximum compensation as well as his guaranteed compensation. Models 1.1, 1.2, 2.1, 2.2, 3.2, 4.1, and 4.2 indicate that maximum compensation is positively related to a head coach's career tenure. This indicates that as a head coach's career tenure increases, there will be an increase in his maximum compensation as determined by his contract. Models 5.1, 5.2, 6.1, 6.2, 7.1, 7.2, 8.1, and

8.2 indicate that a head coach's guaranteed compensation is positive and significantly related to head coaching age and university tenure. It can therefore be concluded that as a head coach's tenure at a university increases, both his maximum compensation and his guaranteed compensation increases. Likewise, both maximum compensation and guaranteed compensation are positively related to head coaching age.<sup>36</sup>

## **5.6 Conclusions: Final Conclusions**

This dissertation examined contracts for NCAA FBS head football coaches in order to investigate the determinants of both maximum compensation and guaranteed compensation in the market for head coaches. Though the scope of this study examined NCAA FBS head football coaches, many of the relationships found may lead to a better understanding of top corporate executive compensation packages.

For instance, this dissertation finds maximum compensation is positively related to the performance of a university's football program and the head football coach. This supports corporate compensation studies that find executive compensation to be positive and significantly related to the performance of a firm.

Furthermore, this dissertation finds maximum compensation and guaranteed compensation to be positively related to the length of service career and university tenure. This result supports the findings of Gillan, Hartzell, and Parrino (2009), who show that uncertain relationships between a CEO and the firm are more likely to yield explicit contract agreements. Similarly, the longer a head coach's career and university tenure,

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<sup>36</sup> Head coaching age is calculated as the current age of the head coach minus career head coaching tenure.

the less uncertainty about quality and performance. This leads to an increase in maximum compensation and guaranteed compensation.

Maximum compensation is found to be positively and significantly related to size. This supports previous findings indicating that executive compensation is positively related to the size of the firm. However, this dissertation finds that guaranteed compensation is not significantly related to size. Thus, we might speculate that guaranteed executive compensation is not positively related to firm size, but that other factors are more important in determining how much of an executives compensation is guaranteed.

Finally a large portion of this dissertation was to examine Jensen, Murphy and Wruck's first two critical dimensions of a remuneration package, utilizing NCAA Football Bowl Subdivision head football coach's contracts.<sup>37</sup> Addressing Jensen, Murphy and Wruck's first critical dimension, this dissertation offers discernment into the configuration of NCAA FBS head coach's contracts and delivers insight into salary structure, performance incentives, non-performance incentives (perquisites), and termination and buyout agreements found within these contracts.

Addressing Jensen, Murphy and Wruck's second critical dimension, this dissertation provides understanding into the determinants of these contracts. More specifically, it examines the determinants of a NCAA Football Bowl Division head

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<sup>37</sup> Jensen, Murphy, and Wruck's first two critical dimensions of a remuneration package are first, the total benefits associated with the job or position including the costs and benefits of non-pecuniary aspects of the job, and second, the composition of the remuneration package.

coach's maximum compensation, as well as the determinants of guaranteed compensation.

This dissertation does not address Jensen, Murphy and Wruck's third critical dimension, relating the compensation structure of these employment agreements to performance. A natural extension of this dissertation is to examine the relationship of executive compensation and guaranteed compensation of NCAA FBS head coach's contracts as they relate to the third critical dimension of Jensen, Murphy, and Wruck.

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**TABLE 1****Variable Definitions**

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<b>Contract Variables</b>	<b>Definitions</b>
<i><u>Coach Characteristics</u></i>	
coach	Name of NCAA head football coach
age	Age of Coach during current contract year
racew	Dummy variable equals 1 if Coach is Caucasian, 0 if Coach is not Caucasian
raceb	Dummy variable equals 1 if Coach is African-American, 0 if Coach is not African-American
raceo	Dummy variable equals 1 if Coach is of any ethnicity other than Caucasian or African-American, 0 if Coach is Caucasian or African-American.
yrsuniv	Number of years Coach has been employed as the University's head football coach.
univw	The total number of games the coach has won while employed by the University as the University's head football coach.
univl	The total number of games the coach has lost while employed by the University as the University's head football coach.
perunivwin	The coach's percent wins out of games played while employed by the University as the University's head football coach.
yrscr	The total number of years the coach has been employed as a head football coach by any NCAA Bowl Championship Division program.
hcage	This is calculated as the difference between a head coach's age and his career tenure as a head coach

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**TABLE 1****Variable Definitions**

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<b>Contract Variables</b>	<b>Definitions</b>
wcr	The total number of career games the coach has won while employed as a head football coach by any NCAA Bowl Championship Division program.
lcr	The total number of career games the coach has lost while employed as a head football coach by any NCAA Bowl Championship Division program.
percrwin	The coach's percent wins out of games played while employed as a head football coach by any NCAA Bowl Championship Division program.
fvr	Dummy variable equals 1 if Coach voluntarily left his previous job or came out of retirement to become the head coach for the current University's football program, 0 if coach was fired from his previous job and become the head coach for the current University's football program
head	Dummy variable equals 1 if Coach was the head coach at his previous employment position, 0 if Coach was not the head coach at his previous employment position
nfl	Dummy variable equals 1 if Coach was previously employed in the National Football League, 0 if Coach was not the previously employed in the National Football League
within	Dummy variable equals 1 if Coach was previously employed by the University in some other position, 0 if Coach was not previously employed by the University in some other position
<b><u>University Characteristics</u></b>	
univ	University employing Coach during current contract year
conf	NCAA Bowl Championship Conference with which University is affiliated during current contract year
big_12	Dummy variable equals 1 if University is affiliated with the Big 12 Conference and 0 if affiliated with any other Conference

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**TABLE 1****Variable Definitions**

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<b>Contract Variables</b>	<b>Definitions</b>
acc	Dummy variable equals 1 if University is affiliated with the Atlantic Coast Conference and 0 if affiliated with any other Conference
big_east	Dummy variable equals 1 if University is affiliated with the Big East Conference and 0 if affiliated with any other Conference
big_10	Dummy variable equals 1 if University is affiliated with the Big 10 Conference and 0 if affiliated with any other Conference
cusa	Dummy variable equals 1 if University is affiliated with Conference USA and 0 if affiliated with any other Conference
mac	Dummy variable equals 1 if University is affiliated with the Mid-American Conference and 0 if affiliated with any other Conference
mwc	Dummy variable equals 1 if University is affiliated with the Mountain West Conference and 0 if affiliated with any other Conference
pac_10	Dummy variable equals 1 if University is affiliated with the Pacific Athletic Conference 10 and 0 if affiliated with any other Conference
sec	Dummy variable equals 1 if University is affiliated with the Southeastern Conference and 0 if affiliated with any other Conference
sunbelt	Dummy variable equals 1 if University is affiliated with the SunBelt Conference and 0 if affiliated with any other Conference
wac	Dummy variable equals 1 if University is affiliated with the Western Athletic Conference and 0 if affiliated with any other Conference
pfvr	Dummy variable equals 1 if the University's previous head football coach retired from coaching or voluntarily left to for a position in another football program, 0 if the University's fired the previous Coach as head coach for their football program

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**TABLE 1****Variable Definitions**

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<b>Contract Variables</b>	<b>Definitions</b>
phead	Dummy variable equals 1 if the University's previous head football coach left to become the head coach for another football program, 0 if the University's previous head football coach left to become the head coach for another football program
pnfl	Dummy variable equals 1 if the University's previous head football coach Left to accept a position in the National Football League, 0 if the University's previous head football coach did not leave to accept a position in the National Football League.
stcap	University's football stadium capacity in the current year.
endow <sub>t</sub>	University's current year endowment as reported by the National Association of College and University Business Officers Annual Endowment Study
endow <sub>t-1</sub>	University's previous year endowment as reported by the National Association of College and University Business Officers Annual Endowment Study
rev <sub>t</sub>	Revenue generated in the current year by the University's football program as reported by the U.S. Department of Education's Equity in Athletics Database ( <a href="http://ope.ed.gov/athletics/GetDownloadFile.aspx">http://ope.ed.gov/athletics/GetDownloadFile.aspx</a> )
rev <sub>t-1</sub>	Revenue generated in the previous year by the University's football program as reported by the U.S. Department of Education's Equity in Athletics Database ( <a href="http://ope.ed.gov/athletics/GetDownloadFile.aspx">http://ope.ed.gov/athletics/GetDownloadFile.aspx</a> )
<b><u>University Characteristics: Game Performance</u></b>	
w <sub>t-1</sub>	Number of wins by the University's football program in the previous year.
l <sub>t-1</sub>	Number of losses by the University's football program in the previous year.
w <sub>t</sub>	Number of wins by the University's football program in the current year.

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**TABLE 1****Variable Definitions**

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<b>Contract Variables</b>	<b>Definitions</b>
$l_t$	Number of losses by the University's football program in the current year.
att	Current year average attendance at each University's home football games as reported to the National Collegiate Athletic Association
att <sub>t-1</sub>	Previous year average attendance at each University's home football games as reported to the National Collegiate Athletic Association
percap	Current year average attendance as a percentage of total stadium capacity

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**University Characteristics: Recruiting Performance**

rank	Ranking of current contract year by University's recruiting class as ranked by Rivals (www.rivals.com)
avgstars	Average stars of current contract year by University's recruiting class as assigned by Rivals (www.rivals.com)
points	Total accumulated points of current contract year by University's recruiting class as reported by Rivals (www.rivals.com)
rank <sub>t-1</sub>	Ranking of last contract year by University's recruiting class as ranked by Rivals (www.rivals.com)
avgstars <sub>t-1</sub>	Average stars of last contract year by University's recruiting class as assigned by Rivals (www.rivals.com)
points <sub>t-1</sub>	Total accumulated points of last contract year by University's recruiting class as reported by Rivals (www.rivals.com)
rank <sub>t-2</sub>	Ranking of two contract years ago by University's recruiting class as ranked by Rivals (www.rivals.com)
avgstars <sub>t-2</sub>	Average stars of two contract years ago by University's recruiting class as assigned by Rivals (www.rivals.com)
points <sub>t-2</sub>	Total accumulated points two contract years ago by University's recruiting class as reported by Rivals (www.rivals.com)
rank <sub>t-3</sub>	Ranking of three contract years ago by University's recruiting class as ranked by Rivals (www.rivals.com)

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**TABLE 1****Variable Definitions**

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<b>Contract Variables</b>	<b>Definitions</b>
avgstars <sub>t-3</sub>	Average stars of three contract years ago by University's recruiting class as assigned by Rivals (www.rivals.com)
points <sub>t-3</sub>	Total accumulated points three contract years ago by University's recruiting class as reported by Rivals (www.rivals.com)
ma4rank	Four year average ranking of University's recruiting class as ranked by Rivals (www.rivals.com)
ma4avgstar	Four year average stars of University's recruiting class as assigned by Rivals (www.rivals.com)
ma4points	Four year total accumulated points of University's recruiting class as reported by Rivals (www.rivals.com)
ma3rank	Three year average ranking of University's recruiting class as ranked by Rivals (www.rivals.com)
ma3avgstar	Three year average stars of University's recruiting class as assigned by Rivals (www.rivals.com)
ma3points	Three year total accumulated points of University's recruiting class as reported by Rivals (www.rivals.com)
ma2rank	Two year average ranking of University's recruiting class as ranked by Rivals (www.rivals.com)
ma2avgstar	Two year average stars of University's recruiting class as assigned by Rivals (www.rivals.com)
ma2points	Two year total accumulated points of University's recruiting class as reported by Rivals (www.rivals.com)

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**Contract Characteristics: General and Salary**

yr09	Dummy variable equals 1 if contract observation year is 2009, 0 if contract observation year is not 2009
yr08	Dummy variable equals 1 if contract observation year is 2008, 0 if contract observation year is not 2008
yr07	Dummy variable equals 1 if contract observation year is 2007, 0 if contract observation year is not 2007
yr06	Dummy variable equals 1 if contract observation year is 2006, 0 if contract observation year is not 2006

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**TABLE 1****Variable Definitions**

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<b>Contract Variables</b>	<b>Definitions</b>
yr05	Dummy variable equals 1 if contract observation year is 2005, 0 if contract observation year is not 2005
yr04	Dummy variable equals 1 if contract observation year is 2004, 0 if contract observation year is not 2004
yr03	Dummy variable equals 1 if contract observation year is 2003, 0 if contract observation year is not 2003
bgn	Date in which current contract commenced
end	Date in which current contract expires
term	This is the total length of the coach's current contract
termrmng	This is the length of time left in the coaches contract
basesalary	Coach's current year base salary paid by University
othersalary	Coach's current year additional salary (i.e. Supplemental Pay, Longevity Bonus)
bonus	Signing Bonus
oicamp	Dummy variable equals 1 if Coach can receive outside income from the operation of a yearly football camp, and 0 if Coach cannot receive outside income from the operation of a yearly football camp
oiendorse	Dummy variable equals 1 if Coach can receive outside income from various endorsement opportunities, and 0 if Coach cannot receive outside income from various endorsement opportunities
oieqshap	Dummy variable equals 1 if Coach can receive outside income from Equipment, Shoes, and Apparel contracts, and 0 if Coach cannot receive outside income from Equipment, Shoes, and Apparel contracts
oimedia	Dummy variable equals 1 if Coach can receive outside income from various media sources (this does not refer to coaches radio and TV shows), and 0 if Coach cannot receive outside income from various media sources

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**TABLE 1****Variable Definitions**

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<b>Contract Variables</b>	<b>Definitions</b>
annrep	Dummy variable equals 1 if Coach's contract indicates all outside income earned by Coach must be reported to the University annually 0 if not.
supmkt	Current year supplemental salary earned by coach for participation in various media marketing, endorsements, and public relations (usually not paid by University).
suppanty	Current year annuity supplemental salary paid to Coach (may be paid by University or by other organizations).
di	Dummy variable equals 1 if Coach's contract contains stipulates an annuity payment into a deferred income account to be maintained by the university until an agreed upon date at which the balance is paid to the coach, 0 if Coach's contract does not contains stipulates an annuity payment into a deferred income account to be maintained by the university
dibgn	The date the annual annuity payments made into the deferred income account begin
diend	The date the annual annuity payments made into the deferred income account end
diyrs	The number of years the annuity is paid into the deferred annuity account
diannpay	The dollar amount of the annual annuity payment deposited into the deferred income account.
dibal	The current year balance held in the deferred income account
dideath	Dummy variable equals 1 if Coach's contract contains a clause stipulating upon the coach's death, the coach's estate is eligible to receive the current balance held within the deferred income account, 0 if Coach's contract does not contain a clause stipulating upon the coach's death, the coach's estate is eligible to receive the current balance held within the deferred income account.

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**TABLE 1****Variable Definitions**

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<b>Contract Variables</b>	<b>Definitions</b>
guarsalary	Total Amount of Guaranteed Salary. This is determined as the summation of Base Salary, Other Salary, Bonus, Supplemental Marketing Compensation, and Supplemental Annuity Compensation.
maxbonus	The greatest amount that can be received if team meets prescribed on-field performance goals (e.g. win totals, bowl games appearances, conference and/or national championships, Coach-of-the-Year awards, etc.) and/or academic goals
comp	The summation of GuarSalary and MaxBonus, thus this would be the maximum available compensation Coach could receive within this current year
guar	The percentage of guaranteed salary in regards to the total maximum compensation.

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**Contract Characteristics: Performance Incentives**

dchamp	Performance Incentive Bonus for winning the regular season Conference Division championship
appcchmp	Performance Incentive Bonus for Appearing in the Conference Championship Game.
appbowl2	Performance Incentive Bonus for Appearing in a Tier 2 Post Season Bowl Game (Tier 2 Bowls determined by University).
appbowl1	Performance Incentive Bonus for Appearing in a Tier 1 Post Season Bowl Game (Tier 1 Bowls determined by University).
appbcs	Performance Incentive Bonus for Appearing in a Bowl Championship Series Post Season Bowl Game.
ppnatchmp	Performance Incentive Bonus for Appearing in the National Championship Post Season Bowl Game.
cchmp	Performance Incentive Bonus for Winning the Conference Championship Game.

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**TABLE 1****Variable Definitions**

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<b>Contract Variables</b>	<b>Definitions</b>
winbowl2	Performance Incentive Bonus for Winning a Tier 2 Post Season Bowl Game (Tier 2 Bowls determined by University).
winbowl1	Performance Incentive Bonus for Winning a Tier 1 Post Season Bowl Game (Tier 1 Bowls determined by University).
winbes	Performance Incentive Bonus for Winning a Bowl Championship Series Post Season Bowl Game.
natchmp	Performance Incentive Bonus for Winning the National Championship Post Season Bowl Game.
win5	Performance Incentive Bonus for Winning 5 regular season.
win6	Performance Incentive Bonus for Winning 6 regular season.
win7	Performance Incentive Bonus for Winning 7 regular season.
win8	Performance Incentive Bonus for Winning 8 regular season.
win9	Performance Incentive Bonus for Winning 9 regular season.
win10	Performance Incentive Bonus for Winning 10 regular season.
win11	Performance Incentive Bonus for Winning 11 regular season.
win12	Performance Incentive Bonus for Winning 12 regular season.
natrank	Performance Incentive Bonus for football program being nationally ranked
confcoy	Performance Incentive Bonus for Winning the Conference Coach of the Year Award
natcoy	Performance Incentive Bonus for Winning the National Coach of the Year Award
stfbowl	Bonus allocated to Coach to distribute to football staff when football program makes an appearance in a bowl game.
acach	Current year supplemental salary earned by Coach due to the academic achievements of football student athletes (usually paid by University).

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**TABLE 1****Variable Definitions**

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<b>Contract Variables</b>	<b>Definitions</b>
perfother	All Other Performance Incentives Bonuses paid to Coach in current contract year
perq	Total Number of Performance Incentives Bonuses paid to Coach in current contract year
 <b><u>Contract Characteristics: Non-Performance Incentives</u></b>	
auto1	Dummy variable equals 1 if Coach receives a late model automobile for both personal and business use paid for by University, 0 if Coach does not receive a late model automobile for both personal and business use paid for by University.
auto2	Dummy variable equals 1 if Coach receives a second late model automobile for use by a spouse paid for by University, 0 if Coach does not receive a second late model automobile for use by a spouse paid for by University
cc	Dummy variable equals 1 if Coach receives a Country Club membership paid by University for personal and business use of Coach and family, 0 if Coach does not receive a Country Club membership paid by University for personal and business use of Coach and family
spravel	Dummy variable equals 1 if Coach's spouse receives travel privileges for recruiting and away games, 0 if Coach's spouse receives travel privileges for recruiting and away games
suite	Dummy variable equals 1 if Coach receives a suite at each home football game for use at his discretion either personal or business, 0 if Coach receives a suite at each home football game for use at his discretion either personal or business
tkts	Number of additional season football tickets Coach receives for use at his discretion, either personal or business.
othertkts	Number of additional season tickets for other sports (Men's and Women's Basketball, Men's Hockey, and All Sports) Coach receives for use at his discretion, either personal or business.

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**TABLE 1****Variable Definitions**

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<b>Contract Variables</b>	<b>Definitions</b>
bowltkts	Number of additional bowl tickets Coach receives for use at his discretion, either personal or business.
rettkts	Number of additional season football tickets Coach receives for use after his retirement.
nperfother	Other Non-Performance Based Incentives Coach receives during current contract year.

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**Contract Characteristics: Termination and Buyout Characteristics**

tcconfrlz	Dummy variable equals 1 if Coach's contract contains a clause allowing the University, at its discretion to terminate Coach's contract with just cause due to violation of conference rules and bylaws, 0 if Coach's contract does not contain a clause allowing the University, at its discretion to terminate Coach's contract with just cause due to violation of conference rules and bylaws.
tencaarlz	Dummy variable equals 1 if Coach's contract contains a clause allowing the University, at its discretion to terminate Coach's contract with just cause due to violation of National Collegiate Athletic Association rules and bylaws, 0 if Coach's contract does not contain a clause allowing the University, at its discretion to terminate Coach's contract with just cause due to violation of National Collegiate Athletic Association rules and bylaws.
tcdeath	Dummy variable equals 1 if Coach's contract contains a clause allowing the University, at its discretion to terminate Coach's contract with just cause due to death of Coach, 0 if Coach's contract does not contain a clause allowing the University, at its discretion to terminate Coach's contract with just cause due to death of Coach.

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**TABLE 1****Variable Definitions**

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<b>Contract Variables</b>	<b>Definitions</b>
tccont	Dummy variable equals 1 if Coach's contract contains a clause allowing the University, at its discretion to terminate Coach's contract with just cause due to violation of any terms of Coach's contract, 0 if Coach's contract does not contain a clause allowing the University, at its discretion to terminate Coach's contract with just cause due to violation of any terms of Coach's contract.
tcuniv	Dummy variable equals 1 if Coach's contract contains a clause allowing the University, at its discretion to terminate Coach's contract with just cause due to violation of University rules and bylaws, 0 if Coach's contract does not contain a clause allowing the University, at its discretion to terminate Coach's contract with just cause due to violation of University rules and bylaws.
tcdi	Dummy variable equals 1 if Coach's contract contains a clause stipulating upon the termination of Coach's contract with just cause by the University, Coach is eligible to receive the current balance held within the deferred income account, 0 if Coach's contract does not contain a clause stipulating upon the termination of Coach's contract with just cause by the University, Coach is eligible to receive current balance held within the deferred income account.
tccrim	Dummy variable equals 1 if Coach's contract contains a clause allowing the University, at its discretion to terminate Coach's contract with just cause due to criminal charges of moral turpitude, 0 if Coach's contract does not contain a clause allowing the University, at its discretion to terminate Coach's contract with just cause due to criminal charges of moral turpitude.
teltdis	Dummy variable equals 1 if Coach's contract contains a clause allowing the University, at its discretion to terminate Coach's contract with just cause due to long term disability (usually defined as the inability to perform duties of head coach for six months), if Coach's contract does not contain a clause allowing the University, at its discretion to terminate Coach's contract with just cause due to long term disability.

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**TABLE 1****Variable Definitions**

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<b>Contract Variables</b>	<b>Definitions</b>
twccost	Current Year Cost to the University for termination of Coach's contract without just cause.
mc	Dummy variable equals 1 if Coach's contract contains a mitigation clause obligating Coach to actively seek other employment upon the termination without cause by the University, 0 if Coach's contract does not contain a mitigation clause obligating Coach to actively seek other employment upon the termination without cause by the University
twcdi	Dummy variable equals 1 if Coach's contract contains a clause stipulating upon the termination of Coach's contract without just cause by the University, Coach is eligible to receive the current balance held within the deferred income account, 0 if Coach's contract does not contain a clause stipulating upon the termination of Coach's contract without just cause by the University, Coach is eligible to receive current balance held within the deferred income account.
twcrsmt	Dummy variable equals 1 if Coach's contract contains a reassignment clause allowing the University to reassign the coach to other duties through the remainder of his contract (in most cases the university continues to pay coach his guaranteed base salary, but coach is ineligible for all nonguaranteed salary or bonuses), 0 if Coach's contract does not contain a reassignment clause allowing the University to reassign the coach to other duties through the remainder of his contract
bo	Dummy variable equals 1 if Coach's contract contains a Buyout clause (option for Coach to cancel employment contract for other employment) 0 Coach's contract does not contain a Buyout clause.
bocost	Current contract year Buyout exercise cost
bodi	Dummy variable equals 1 if upon exercise of Coach's buyout option Coach is still eligible for cumulative Deferred Income, 0 if upon exercise of Coach's buyout option Coach is not eligible for cumulative Deferred Income

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**Table 2. Descriptive Statistics**

The sample football programs consists of all public University football programs within the National Collegiate Athletic Association’s Bowl Championship Division for which the university’s head football coach’s employment agreement is publically available for the years 2003-2009. The coach’s variables and the contract structure variables were collected from each university’s head football coach’s employment agreement and from other various sources. stadium capacity, coach’s win/loss records (UnivW, UnivL, UnivT, CrW, CrL, CrT, Wt, Lt, Wlag1, and Llag1) were collected from either the NCAA, or College Football Data Warehouse. The recruiting data was collected from Rivals.com. The succession information (FVR, NFL, Head, PFVR, PNFL, and PHead) were collected from various sources such as Coaches Hot Seat, University Websites, and other news sources. Average attendance was collected from the NCAA’s annual attendance report. Endowment information was collected from the National Association of College and University Business Officers Annual Endowment Study. Finally, football revenues were collected from the U.S. Department of Education’s Equity in Athletics Database.

Variable	N	Mean	Median	SD	Min	Max
<b><i>Coach Characteristics (Panel A)</i></b>						
age	518	51.20	51.00	8.32	33.00	79.00
racew	518	0.93	1.00	0.25	0.00	1.00
raceb	518	0.05	0.00	0.22	0.00	1.00
raceo	518	0.02	0.00	0.14	0.00	1.00
yrsuniv	518	5.53	4.00	5.14	1.00	34.00
univw	518	40.65	26.00	47.05	1.00	316.00
univl	518	27.61	23.50	19.50	0.00	97.00
perunivwin	518	54.00	54.00	17.69	0.00	100.00
yrscr	518	10.10	8.00	7.88	1.00	44.00
hcage	518	41.10	41.00	6.40	26.00	61.00
wcr	518	71.84	57.00	64.17	1.00	389.00
lcr	518	47.46	40.00	33.30	0.00	160.00
percrwin	518	55.36	58.00	15.73	0.00	100.00
fvr	518	0.92	1.00	0.27	0.00	1.00
head	518	0.42	0.00	0.50	0.00	1.00
nfl	518	0.18	0.00	0.38	0.00	1.00
within	518	0.16	0.00	0.36	0.00	1.00
<b><i>University Characteristics (Panel B1)</i></b>						
big_12	518	0.12	0.00	0.32	0.00	1.00
acc	518	0.09	0.00	0.29	0.00	1.00

Variable	N	Mean	Median	SD	Min	Max
big_east	518	0.07	0.00	0.25	0.00	1.00
big_10	518	0.10	0.00	0.30	0.00	1.00
cusa	518	0.08	0.00	0.27	0.00	1.00
mac	518	0.12	0.00	0.32	0.00	1.00
mwc	518	0.07	0.00	0.25	0.00	1.00
pac_10	518	0.07	0.00	0.26	0.00	1.00
sec	518	0.09	0.00	0.29	0.00	1.00
sunbelt	518	0.09	0.00	0.28	0.00	1.00
wac	518	0.09	0.00	0.29	0.00	1.00
pfvr	518	0.42	0.00	0.50	0.00	1.00
phead	518	0.25	0.00	0.44	0.00	1.00
pnfl	518	0.12	0.00	0.32	0.00	1.00
stcap	518	53,247	50,250	23,386	16,000	107,501
endmnt <sub>t</sub>	471	\$920,066	\$412,308	\$1,832,649	\$17,542	\$16,171,184
endmnt <sub>t-1</sub>	467	\$902,369	\$404,674	\$1,789,537	\$17,542	\$16,171,184
rev <sub>t</sub>	421	\$17,908,753	\$12,205,141	\$16,824,606	\$740,749	\$87,583,986
rev <sub>t-1</sub>	513	\$17,281,670	\$11,931,887	\$16,302,183	\$670,647	\$87,583,986

***University Characteristics: Game Performance (Panel B2)***

w <sub>t-1</sub>	518	6.56	7.00	2.89	0.00	14.00
l <sub>t-1</sub>	518	5.77	6.00	2.39	0.00	12.00
w <sub>t</sub>	518	6.56	7.00	2.86	0.00	14.00
l <sub>t</sub>	518	5.85	6.00	2.36	0.00	12.00
avgatt <sub>t</sub>	515	45,118	41,209	26,730	5,016	111,025
Avgatt <sub>t-1</sub>	512	45,019	40,978	26,715	5,219	111,025
percap	518	79.67	87.00	20.63	17.00	117.00

***University Characteristics: Recruiting Performance (Panel B3)***

rank <sub>t</sub>	507	57.86	59.00	33.60	1.00	120.00
avgstars <sub>t</sub>	507	2.59	2.46	0.54	1.73	3.94
points <sub>t</sub>	507	717.24	406.00	722.40	39.00	2,959.00
rank <sub>t-1</sub>	504	57.76	59.00	33.57	1.00	120.00
avgstars <sub>t-1</sub>	504	2.57	2.42	0.54	1.00	4.09
points <sub>t-1</sub>	504	730.07	490.50	711.89	25.00	2,959.00
rank <sub>t-2</sub>	473	58.13	59.00	33.90	1.00	118.00
avgstars <sub>t-2</sub>	473	2.54	2.36	0.55	0.70	4.09
points <sub>t-2</sub>	473	753.51	626.00	699.90	25.00	2,959.00
rank <sub>t-3</sub>	426	57.73	58.00	33.79	1.00	118.00
avgstars <sub>t-3</sub>	426	2.53	2.37	0.55	0.70	4.09



Variable	N	Mean	Median	SD	Min	Max
points <sub>t-3</sub>	426	804.35	714.00	689.76	25.00	2,901.00
ma4rank	518	53.48	49.00	31.63	0.00	110.00
ma4AvgStar	518	2.36	2.23	0.71	0.00	3.89
ma4Points	518	690.60	510.50	618.27	0.00	2,619.00
ma3Rank	518	55.31	51.00	34.62	0.00	115.00
ma3AvgStar	518	2.45	2.34	0.67	0.00	0.67
ma3Points	518	700.13	507.00	649.09	0.00	2,820.00
ma2Rank	518	29.69	30.00	17.05	0.00	61.00
ma2AvgStar	518	2.52	2.42	0.65	0.00	3.89
ma2Points	518	706.43	459.50	682.76	0.00	2930.00

***Contract Characteristics: General and Salary (Panel C1)***

yr09	518	0.18	0.00	0.39	0.00	1.00
yr08	518	0.18	0.00	0.38	0.00	1.00
yr07	518	0.18	0.00	0.38	0.00	1.00
yr06	518	0.18	0.00	0.38	0.00	1.00
yr05	518	0.13	0.00	0.35	0.00	1.00
yr04	518	0.09	0.00	0.29	0.00	1.00
yr03	518	0.06	0.00	0.23	0.00	1.00
term	518	6.51	6.00	2.22	1.00	14.10
termrmng	518	4.70	4.90	1.68	1.00	10.50
basesalary	518	\$285,717	\$228,300	\$226,534	\$75,000	\$1,900,000
othersalary	115	\$292,136	\$120,000	\$395,599	\$4,800	\$1,800,000
bonus	31	\$283,861	\$200,000	\$269,399	\$25,000	\$1,000,000
oicamp	513	0.90	1.00	0.30	0.00	1.00
oiendorse	513	0.78	1.00	0.41	0.00	1.00
oieqshap	513	0.67	1.00	0.47	0.00	1.00
oimedia	513	0.71	1.00	0.45	0.00	1.00
annrep	513	0.99	1.00	0.08	1.00	1.00
supmkt	422	\$661,231	\$505,000	\$629,247	\$1,000	\$3,275,000
suppany	25	\$128,840	\$125,000	\$117,335	\$16,000	\$300,000
di	518	0.28	0.00	0.45	0.00	1.00
diyrs	137	5.41	5.00	2.18	0.00	11.00
diannpay	131	\$163,872	\$100,000	\$191,351	\$10,200	\$750,000
dibal	137	\$359,205	\$200,000	\$444,044	\$10,200	\$3,000,000
dideath	518	0.22	0.00	0.41	0.00	1.00
guarsalary	518	\$912,466	\$697,500	\$762,882	\$75,000	\$3,780,000
maxbonus	518	\$350,936	\$280,000	\$328,751	\$0	\$1,722,250
totalmax	518	\$1,263,402	\$1,000,000	\$978,148	\$90,000	\$4,630,000
perguar	518	73.65	75.13	16.17	19.84	100.00

Variable	N	Mean	Median	SD	Min	Max
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**Contract Characteristics: Performance Based Incentives (Panel C2)**

dchamp	136	\$28,384	\$21,250	\$27,514	\$2,000	\$100,000
appcchmp	103	\$49,376	\$37,500	\$35,014	\$5,000	\$150,000
appbowl2	434	\$28,286	\$25,000	\$21,170	\$2,500	\$150,000
appbowl1	121	\$30,697	\$25,000	\$17,673	\$7,500	\$75,000
appbcs	333	\$58,966	\$50,000	\$47,961	\$4,894	\$340,000
appnatchmp	119	\$72,297	\$50,000	\$53,659	\$20,000	\$250,000
cchmp	379	\$50,558	\$25,000	\$61,573	\$2,500	\$382,884
winbowl2	64	\$15,562	\$10,000	\$13,368	\$2,500	\$50,000
winbowl1	5	\$25,000	\$25,000	\$0.00	\$25,000	\$25,000
bcswin	28	\$67,589	\$50,000	\$62,303	\$7,500	\$250,000
natchmp	190	\$156,873	\$150,000	\$99,934	\$25,000	\$500,000
win5	1	\$2,000	\$2,000	\$0.00	\$2,000	\$2,000
win6	24	\$16,760	\$10,000	\$15,404	\$5,000	\$50,000
win7	51	\$20,343	\$10,000	\$22,237	\$2,500	\$100,000
win8	88	\$15,999	\$10,000	\$19,082	\$2,500	\$100,000
win9	97	\$22,340	\$10,000	\$27,372	\$2,500	\$100,000
win10	102	\$28,304	\$10,000	\$42,644	\$2,500	\$200,000
win11	84	\$33,565	\$10,000	\$76,615	\$2,500	\$500,000
win12	63	\$51,897	\$15,000	\$110,812	\$2,500	\$600,000
natrank	198	\$69,083	\$50,000	\$88,385	\$4,350	\$450,000
confcoy	244	\$20,036	\$20,000	\$16,094	\$2,000	\$133,333
natcoy	193	\$39,241	\$50,000	\$23,140	\$5,000	\$150,000
stfbowl	4	\$40,000	\$40,000	\$0.00	\$40,000	\$40,000
acach	312	\$53,461	\$27,353	\$59,031	\$2,500	\$275,000
perfother	211	\$113,633	\$31,000	\$256,519	\$1,500	\$1,500,000

**Contract Characteristics: Non-Performance Based Incentives (Panel C3)**

auto1	518	0.80	1.00	0.40	0.00	1.00
auto2	518	0.41	0.00	0.49	0.00	1.00
cc	518	0.56	1.00	0.50	0.00	1.00
sptravel	518	0.20	0.00	0.40	0.00	1.00
suite	518	0.26	0.00	0.44	0.00	1.00
tkts	257	18.44	20.00	9.00	6.00	50.00
othertkts	174	6.24	4.00	4.73	4.00	30.00
bowltkts	70	22.66	16.00	38.24	6.00	200.00
perq	518	3.42	3.00	2.37	0.00	8.00

Variable	N	Mean	Median	SD	Min	Max
<b><i>Contract Characteristics: Termination and Buyout Characteristics (Panel C4)</i></b>						
tcconfrlz	518	1.00	1.00	0.00	1.00	1.00
tcncaarlz	518	1.00	1.00	0.00	1.00	1.00
tcdeath	518	0.83	1.00	0.13	0.00	1.00
tccont	518	1.00	1.00	0.00	1.00	1.00
tcuniv	518	1.00	1.00	0.00	1.00	1.00
tcdi	518	0.03	0.00	0.17	0.00	1.00
tccrim	518	0.99	1.00	0.12	0.00	1.00
teltdis	518	0.86	1.00	0.35	0.00	1.00
twccost	509	\$2,920,854	\$1,500,000	\$3,706,742	\$0.00	\$28,000,000
mc	518	0.39	0.00	0.49	0.00	1.00
twcdi	518	0.18	0.00	0.39	0.00	1.00
twcrsmt	518	0.18	0.00	0.38	0.00	1.00
bo	518	0.87	1.00	0.03	0.00	1.00
bocost	409	\$1,037,388	\$500,000	\$1,695,115	\$0.00	\$13,440,000
bodi	433	0.02	0.00	0.13	0.00	1.00

**Table 3. Univariate Test Results**

Table 3 shows the results of the univariate tests. The sample football programs were split into two subgroups, *Low Total Maximum Compensation* and *High Total Maximum Compensation* based on whether they fell above or below the median maximum compensation of \$1,000,000. The t-statistic provides a two-tailed test of the null hypothesis that the mean [median] values do not differ. The Wilcoxon sign-rank Z-statistic provides a two-tailed test of the null hypothesis that the median values do not differ. Significance levels are as follows: \*\*\*1%, \*\*5%, \*10%.

Variable	Low	High	t-statistic	Wilcoxon
	<i>Total Max</i>	<i>Total Max</i>		Sign rank
	Mean	Mean		Z-statistic
	[Median]	[Median]	(p-value)	(p-value)
<b><i>Coach Characteristics (Panel A)</i></b>				
age	50.77	51.63	-1.1800	1.7356*
	[50.00]	[52.00]	0.2398	0.0826
racew	0.93	0.92	0.7400	-0.7378
	[1.00]	[1.00]	0.4608	0.4606
raceb	0.05	0.05	-0.0400	0.0396
	[0.00]	[0.00]	0.9678	0.9684
raceo	0.01	0.03	-1.3000	1.2995
	[0.00]	[0.00]	0.1936	0.1938
yrsuniv	4.90	6.18	-2.8700***	2.6904***
	[4.00]	[5.00]	0.0043	0.0071
univw	32.17	48.95	-4.1200***	4.5826***
	[20.00]	[34.00]	<0.0001	<0.0001
univl	27.95	27.27	0.40	-0.9281
	[24.00]	[23.00]	0.6928	0.3533
perunivwin	46.97	58.59	-7.9100***	6.8933***
	[48.00]	[58.00]	<.0001	<0.0001
yrscr	8.51	11.71	-4.72***	5.1183***
	[6.00]	[11.00]	<0.0001	<0.0001
hcage	42.10	40.04	3.70***	-3.5986***
	[42.00]	[39.00]	<0.0002	<0.0002
wcr	54.31	89.64	-6.5100***	6.7629***
	[39.00]	[73.00]	<0.0001	<0.0001
lcr	45.03	49.92	-1.6700*	2.6228***
	[35.00]	[46.00]	0.0950	0.0087
percrwin	49.36	61.44	-9.4600***	8.7458***
	[53.00]	[63.00]	<0.0001	<.0001

Variable	Low	High	Wilcoxon	
	<i>Total Max</i>	<i>Total Max</i>	Sign rank	
	Mean [Median]	Mean [Median]	t-statistic (p-value)	Z-statistic (p-value)
fvr	0.91 [1.00]	0.94 [1.00]	-1.2700 0.2063	1.2641 0.2062
head	0.35 [0.00]	0.51 [1.00]	-3.7500*** 0.0002	3.6998*** 0.0002
nfl	0.13 [0.00]	0.22 [0.00]	-2.7500*** 0.0061	2.7337*** 0.0063
within	0.16 [0.00]	0.16 [0.00]	0.0500 0.9639	-0.0448 0.9643

**University Characteristics (Panel B)**

big_12	0.03 [0.00]	0.21 [0.00]	-6.7400*** <0.001	6.4644*** <0.001
acc	0.03 [0.00]	0.15 [0.00]	-4.9000*** <0.0001	4.7925*** <0.0001
big_east	0.04 [0.00]	0.10 [0.00]	-2.6900*** 0.0075	2.6699*** 0.0076
big_10	0.04 [0.00]	0.16 [0.00]	-4.83*** <0.0001	4.7324*** <0.0001
cusa	0.12 [0.00]	0.04 [0.00]	3.5200*** 0.0005	1.3683*** <.0001
mac	0.24 [0.00]	0.00 [0.00]	8.9300*** <0.0001	-3.4852*** 0.0005
mwc	0.09 [0.00]	0.04 [0.00]	2.2300** 0.0259	-8.3191*** <0.0001
pac_10	0.04 [0.00]	0.11 [0.00]	-2.9700*** 0.0031	2.9456*** 0.0032
sec	0.04 [0.00]	0.15 [0.00]	-4.1700*** <0.0001	4.1060*** <0.0001
sunbelt	0.17 [0.00]	0.00 [0.00]	7.30*** <0.0001	-6.9587*** <0.0001
wac	0.14 [0.00]	0.04 [0.00]	3.93*** <0.0001	-3.8794*** 0.0001
pfvr	0.43 [0.00]	0.40 [0.00]	0.6500 0.5152	-0.6513 0.5149

Variable	Low	High	Wilcoxon	
	<i>Total Max</i>	<i>Total Max</i>	Sign rank	
	Mean [Median]	Mean [Median]	t-statistic (p-value)	Z-statistic (p-value)
phead	0.25 [0.00]	0.26 [0.00]	-0.3000 0.7613	0.3038 0.7613
pnfl	0.07 [0.00]	0.16 [0.00]	-3.1100*** 0.0020	3.0807*** 0.0021
stcap	38,406 [31,218]	68,319 [68,349]	-18.9300*** <0.0001	15.1486*** <0.0001
endmnt <sub>t</sub>	\$310,489 [\$175,797]	\$1,440,847 [\$677,425]	-7.0100*** <0.0001	-12.2687*** <0.0001
endmnt <sub>t-1</sub>	\$290,531 [\$170,830]	\$1,424,374 [\$671,469]	-7.1900*** <0.0001	-12.5191*** <0.0001
rev <sub>t</sub>	\$8,125,256 [\$5,220,916]	\$28,617,058 [\$24,286,331]	-15.7200*** <0.0001	14.0539*** <0.0001
rev <sub>t-1</sub>	\$7,337,926 [\$4,870,639]	\$27,186,723 [\$22,830,766]	-17.3700*** <0.0001	-15.8276*** <0.0001

***University Characteristics: Game Performance (Panel B2)***

w <sub>t-1</sub>	5.54 [5.00]	7.60 [8.00]	-8.7000*** <0.0001	8.1556*** <0.0001
l <sub>t-1</sub>	6.58 [6.00]	4.95 [5.00]	8.2500*** <0.0001	-7.7137*** <0.0001
w <sub>t</sub>	5.52 [5.00]	7.61 [8.00]	-8.9300*** <0.0001	8.2642*** <0.0001
l <sub>t</sub>	6.67 [7.00]	5.00 [5.00]	8.6100*** <0.0001	-7.7498*** <0.0001
avgatt <sub>t</sub>	26,983 [20,114]	63,323 [60,232]	-21.0300*** <0.0001	15.8993*** <0.0001
avgatt <sub>t-1</sub>	26,947 [20,479]	62,950 [60,377]	-20.6300*** <0.0001	-15.7515*** <0.0001
percap	67.72 [65.00]	91.67 [96.00]	-16.1700*** <0.0001	13.8381*** <0.0001

Variable	Low	High	t-statistic (p-value)	Wilcoxon
	<i>Total Max</i>	<i>Total Max</i>		Sign rank
	Mean [Median]	Mean [Median]		Z-statistic (p-value)
<b><i>University Characteristics: Recruiting Performance (Panel B3)</i></b>				
rank <sub>t</sub>	79.69 [85.50]	36.63 [34.00]	18.78*** <.0001	14.3000*** <.0001
avgstars <sub>t</sub>	2.23 [2.13]	2.95 [2.96]	-20.1300*** <0.0001	-15.6153*** <0.0001
points <sub>t</sub>	294.35 [107.50]	1,129 [1,110]	-15.9100*** <0.0001	-14.3889*** <0.0001
rank <sub>t-1</sub>	79.99 [86.00]	36.40 [33.00]	19.1500*** <0.0001	14.4599*** <0.0001
avgstars <sub>t-1</sub>	2.21 [2.11]	2.91 [2.92]	-19.1700*** <0.0001	-15.3567*** <0.0001
points <sub>t-1</sub>	327.47 [112.00]	1,117 [1,107]	-14.9500*** <0.0001	-13.6567*** <0.0001
rank <sub>t-2</sub>	81.13 [87.00]	36.73 [33.00]	18.8300*** <0.0001	14.1127*** <0.0001
avgstars <sub>t-2</sub>	2.18 [2.08]	2.87 [2.82]	-17.6900*** <0.0001	-14.6489*** <0.0001
points <sub>t-2</sub>	371.31 [122.00]	1,109 [1,100]	-13.4700*** <0.0001	-12.3327*** <0.0001
rank <sub>t-2</sub>	81.36 [87.00]	37.01 [33.00]	17.8800*** <0.0001	13.4170*** <0.0001
avgstars <sub>t-2</sub>	2.17 [2.08]	2.85 [2.81]	-16.0700*** <0.0001	-13.7113*** <0.0001
points <sub>t-2</sub>	440.48 [176.00]	1,123 [1,122]	-11.7200*** <0.0001	-10.6753*** <0.0001
ma4rank	71.37 [82.00]	35.31 [32.00]	15.7800*** <0.0001	-12.8016*** <0.0001
ma4avgstar	1.94 [2.06]	2.78 [2.81]	-16.6200*** <0.0001	14.7776*** <0.0001
ma4points	313.15 [236.00]	1,074 [1,000]	-17.7500*** <0.0001	14.6576*** <0.0001
ma3rank	74.30 [84.00]	36.02 [32.00]	16.7000*** <0.0001	-13.2894*** <0.0001

Variable	Low	High	t-statistic (p-value)	Wilcoxon
	<i>Total Max</i>	<i>Total Max</i>		Sign rank
	Mean [Median]	Mean [Median]		Z-statistic (p-value)
ma3avgstar	2.04 [2.08]	2.87 [2.86]	-17.9200*** <0.0001	15.8536*** <0.0001
ma3points	305.41 [157.00]	1,101 [1,043]	-17.6400*** <.00001	14.7308*** <0.0001
ma2rank	39.40 [43.00]	19.80 [18.00]	15.9800*** <0.0001	-12.9978*** <0.0001
ma2avgstar	2.11 [2.10]	2.93 [2.91]	-18.4500*** <0.0001	16.1958*** <0.0001
ma2points	296.17 [117.00]	1,123 [1,055]	-17.3100*** <0.0001	14.8057*** <0.0001

**Contract Characteristics: General and Salary (Panel C)**

yr09	0.15 [0.00]	0.22 [0.00]	-2.1400** 0.0328	2.1324** 0.0330
yr08	0.15 [0.00]	0.21 [0.00]	-1.5700 0.1167	1.5685 0.1168
yr07	0.17 [0.00]	0.18 [0.00]	-0.4300 0.6697	0.4267 0.6696
yr06	0.19 [0.00]	0.16 [0.00]	0.9600 0.3390	-0.9567 0.3387
yr05	0.16 [0.00]	0.12 [0.00]	1.4500 0.1466	-1.4516 0.1466
yr04	0.11 [0.00]	0.07 [0.00]	1.6300 0.1041	-1.6250 0.1042
yr03	0.07 [0.00]	0.05 [0.00]	1.080 0.2788	-1.0833 0.2787
term	5.95 [5.10]	7.08 [7.00]	-6.0000*** <0.0001	7.3532*** <0.0001
termrmng	4.11 [4.294]	5.29 [5.00]	-8.5700*** <0.0001	7.8709*** <0.0001
basesalary	\$211,537 [\$195,000]	\$361,051 [\$270,000]	-7.9500*** <0.0001	9.3346*** <0.0001
othersalary	\$61,155 [\$26,250]	\$415,326 [\$225,000]	-5.0400*** <0.0001	-6.7568*** <0.0001



Variable	Low	High	t-statistic (p-value)	Wilcoxon
	<i>Total Max</i>	<i>Total Max</i>		Sign rank
	Mean [Median]	Mean [Median]		Z-statistic (p-value)
bonus	\$75,020 [\$70,208]	\$324,022 [\$200,000]	-1.9800* 0.0569	-2.9969*** 0.0027
oicamp	0.96 [1.00]	0.84 [1.00]	4.5300*** <0.0001	4.4464*** <0.0001
oiendorse	0.88 [1.00]	0.68 [1.00]	5.7900*** <0.0001	5.6170*** <0.0001
oieqshap	0.77 [1.00]	0.56 [1.00]	5.1500*** <0.0001	5.0287*** <0.0001
oimedia	0.83 [1.00]	0.59 [1.00]	6.1000*** <0.0001	5.8982*** <0.0001
annrep	0.99 [1.00]	1.00 [1.00]	-1.7400* 0.0821	-1.7366* 0.0825
supmkt	\$180,682 [\$92,250]	\$1,062,386 [\$936,000]	-20.0100*** <0.0001	-16.2867*** <0.0001
suppanty	.	\$128,840 [\$125,000]	.	.
di	0.22 [0.00]	0.32 [0.00]	-2.3800** 0.0178	2.3665** 0.0180
diyrs	5.96 [5.00]	5.31 [5.00]	0.6100 0.5426	-0.1167 0.9071
diannpay	58,855 [\$50,000]	\$238,007 [\$200,000]	-6.5000*** <0.0001	-6.0774*** <0.0001
dibal	178,218 [\$100,000]	\$500,804 [\$352,189]	-4.6000*** <0.0001	-5.4024*** <0.0001
dideath	0.15 [0.00]	0.28 [0.00]	-3.5200*** 0.0005	3.4820*** 0.0005
guarsalary	\$355,262 [\$287,800]	\$1,478,342 [\$1,300,000]	-24.7500*** <0.0001	18.5874*** <0.0001
maxbonus	\$126,160 [\$90,000]	\$579,211 [\$523,750]	-21.6400*** <0.0001	17.4496*** <0.0001
totalmax	\$481,422 [\$439,253]	\$2,057,553 [\$1,925,000]	-30.9800*** <0.0001	19.6908*** <0.0001
perguar	76.61 [77.68]	70.65 [73.53]	4.2600*** <0.0001	-4.1664*** <0.0001

Variable	Low	High	t-statistic	Wilcoxon
	<i>Total Max</i>	<i>Total Max</i>		Sign rank
	Mean	Mean	(p-value)	Z-statistic
	[Median]	[Median]		(p-value)
<b><i>Contract Characteristics: Performance Incentives (Panel C2)</i></b>				
dchamp	\$7,768	\$49,573	-10.9400***	8.4879***
	[\$10,000]	[\$50000]	<0.0001	<0.0001
appcchmp	\$15,405	\$65,390	-9.0600***	-7.6617***
	[\$13,542]	[\$63,000]	<0.0001	<0.0001
appbowl2	\$17,402	\$37,458	-11.1100***	-11.6963***
	[\$16,667]	[\$25,000]	<0.0001	<0.0001
appbowl1	\$26,218	\$31,922	-1.4700	-2.6998***
	[\$21,992]	[\$25,000]	0.1455	0.0069
appbcs	\$52,368	\$63,034	-1.8200*	-1.6605*
	[\$50,000]	[\$50,000]	0.0702	0.0968
appnatchmp	\$53,684	\$75,833	-1.6600*	-1.3378
	[\$50,000]	[\$50,000]	0.0993	0.1810
cchmp	\$18,710	\$74,080	-9.6500***	-11.7194***
	[\$16,666]	[\$50,000]	<0.0001	<0.0001
winbowl2	\$10,595	\$37,083	-9.8000***	4.6511***
	[\$10,000]	[\$50,000]	<0.0001	<0.0001
winbowl1	.	\$25,000	.	.
	.	[\$25,000]	.	.
bcswin	\$35,278	\$82,895	-1.9900*	-2.5060**
	[\$15,000]	[\$75,000]	0.0573	0.0122
natchmp	\$82,146	\$172,580	-5.02***	-6.0331***
	[\$75,000]	[\$150,000]	<0.0001	<0.0001
win5	\$2,000	.	.	.
	[\$2,000]	[.]	.	.
win6	\$10,185	\$23,333	-2.2700***	-2.1174***
	[\$8,334]	[\$10,000]	0.0332	0.0342
win7	\$9,205	\$28,793	-3.4400***	-3.5478***
	[\$5,000]	[\$20,000]	0.0012	0.0004
win8	\$7,999	\$22,080	-3.6700***	-4.5337***
	[\$6,750]	[\$12,500]	0.0004	<0.0001
win9	\$7,061	\$30,219	-4.5300***	-5.0049***
	[\$6,000]	[\$20,000]	<0.0001	<0.0001

Variable	Low	High	Wilcoxon	
	<i>Total Max</i>	<i>Total Max</i>	Sign rank	
	Mean [Median]	Mean [Median]	t-statistic (p-value)	Z-statistic (p-value)
win10	\$7,722 [\$6,000]	\$39,530 [\$25,000]	-3.8400*** 0.0002	-4.8712*** <0.0001
win11	\$8,157 [\$6,000]	\$51,714 [\$15,000]	-2.6600*** 0.0094	-3.7456*** 0.0002
win12	\$8,232 [\$5,500]	\$86,829 [\$35,000]	-2.9700*** 0.0043	-4.7131*** <0.0001
natrank	\$25,971 [\$15,000]	\$108,847 [\$60,000]	-7.4500*** <0.0001	-8.8266*** <0.0001
confcoy	\$11,812 [\$10,000]	\$47,153 [\$50,000]	-7.5700*** <0.0001	-8.9732*** <0.0001
natcoy	\$23,661 [\$20,000]	\$47,153 [\$50,000]	-7.5800*** <0.0001	-7.8012*** <0.0001
stfbowl	.	\$40,000 [\$40,000]	.	.
acach	\$20,782 [\$19,375]	\$76,194 [\$50,000]	-9.1800*** <0.0001	-10.7157*** <0.0001
perfother	\$46,561 [\$25,000]	\$202,078 [\$81,750]	-4.5600*** <0.0001	6.8069*** <0.0001

**Contract Characteristics: Non-Performance Incentives (Panel C3)**

auto1	0.74 [1.00]	0.86 [1.00]	-3.2300*** 0.0013	3.1990*** 0.0014
auto2	0.19 [0.00]	0.63 [1.00]	-11.440*** <0.0001	10.2272*** <0.0001
cc	0.50 [1.00]	0.62 [1.00]	-2.7800*** 0.0056	2.7641*** 0.0057
sptravel	0.17 [0.00]	0.24 [0.00]	-2.1700* 0.0763	2.1627** 0.0306
suite	0.18 [0.00]	0.34 [0.00]	-4.0600*** <0.0001	4.0038*** <0.0001
tkts	18.39 [20.00]	18.47 [20.00]	-0.0700 0.9436	1.5895 0.1119
othertkts	5.45 [4.00]	6.989 [4.00]	-2.1700** 0.0313	-1.6555* 0.0978

Variable	Low	High	t-statistic (p-value)	Wilcoxon
	<i>Total Max</i>	<i>Total Max</i>		Sign rank
	Mean [Median]	Mean [Median]		Z-statistic (p-value)
bowltkts	14.18 [16.00]	26.54 [20.00]	-1.2600 0.2117	-1.0908 0.2754
perq	2.70 [2.00]	4.15 [4.00]	-7.3000*** <0.0001	6.9145*** <0.0001

**Contract Characteristics: Termination and Buyout Characteristics (Panel C4)**

tcconfrlz	1.00 [1.00]	1.00 [1.00]	. .	0.0000 1.0000
tcncaarlz	1.00 [1.00]	1.00 [1.00]	. .	0.0000 1.0000
tcdeath	0.98 [1.00]	0.99 [1.00]	-0.9900 0.3225	0.9890 0.3227
tccont	1.00 [1.00]	1.00 [1.00]	. .	0.0000 1.0000
tcuniv	1.00 [1.00]	1.00 [1.00]	. .	0.0000 1.0000
tcdi	0.02 [0.00]	0.04 [0.00]	-1.5500 0.1222	1.5449* 0.0615
tccrim	1.00 [1.00]	0.97 [1.00]	2.6900*** 0.0073	-2.6753*** 0.0075
tbltdis	0.82 [1.00]	0.89 [1.00]	-2.3500** 0.0189	2.3434** 0.0191
twccost	\$1,005,557 [\$800,000]	\$4,813,707 [\$3,500,000]	-13.5000*** <0.0001	-15.3135*** <0.0001
mc	0.43 [0.00]	0.36 [0.00]	1.5700 0.1171	-1.5672 0.1171
twcdi	0.14 [0.00]	0.22 [0.00]	-2.3700** 0.0181	2.3602** 0.0183
twcrsmt	0.21 [0.00]	0.14 [0.00]	2.2200** 0.0266	-2.2151** 0.0268
bo	0.88 [1.00]	0.85 [1.00]	0.8500 0.3971	0.8473 0.3968
bocost	\$441,705 [\$257,162]	\$1,635,991 [\$1,000,000]	-7.6000*** <0.0001	9.3080*** <0.0001

Variable	Low	High	t-statistic (p-value)	Wilcoxon
	<i>Total Max</i>	<i>Total Max</i>		Sign rank
	Mean [Median]	Mean [Median]		Z-statistic (p-value)
bodi	0.03 [0.00]	0.01 [0.00]	1.6700* 0.0966	1.6601* 0.0969

**Table 4.1. Estimates of the Relation Between Maximum Compensation, University Characteristics, Head Coaches Characteristics, and Contract Characteristics.**

This table presents both random effects and fixed effects, results for the estimation of the relation between maximum compensation (*comp*) and University Characteristics, Head Coaches Characteristics, and Contract Characteristics. The OLS results are estimated using the equations below.

$$comp_{i,t} = \beta_0 + \beta_1 rev_{i,t} + \beta_2 rec_{i,t} + \beta_4 career_{i,t} + \beta_5 perwin_{i,t} + \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \quad (1.1)$$

$$comp_{i,t} = \beta_0 + \beta_1 rev_{i,t-1} + \beta_2 rec_{i,t-1} + \beta_4 career_{i,t} + \beta_5 perwin_{i,t} + \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \quad (1.2)$$

Statistical significance at the 10%, 5%, or 1% level is indicated by \*, \*\*, \*\*\*, respectively. The standard errors are reported in parentheses beneath the parameter estimates (standard errors are reported for OLS).

	Random Effects (1.1)	Fixed Effects (1.1)	Random Effects (1.2)	Fixed Effects (1.2)
Intercept	\$114,942 (\$233,976)	\$773,243** (\$369,488)	-\$15,373 (\$203,538)	\$146,330 (\$263,611)
Revenue (000's)	\$31.76*** (\$2.77)	\$28.02*** (\$3.51)	-- --	-- --
Lagged Revenue (000's)	-- --	-- --	\$38.33*** (\$2.63)	\$35.64*** (\$3.23)
Recruiting	\$41.42 (\$55.71)	-\$44.54 (\$60.60)	-- --	-- --
Lagged Recruiting	-- --	-- --	-\$21.71 (\$51.83)	-\$96.20* (\$56.93)
Career (number of years)	\$9,786* (\$5,861)	\$6,947 (\$7,852)	\$10,983** (\$5,314)	\$9,486 (\$6,656)
Winning Percentage (Career)	\$7,072*** (\$2,766)	\$5,735* (\$3,829)	\$7,476*** (\$2,546)	\$6,967** (\$3,101)
Current Coach: Previous Employment (Fired or Voluntarily Resigned)	-\$8,882 (\$173,782)	-\$520,222** (\$269,547)	\$130,723 (\$150,346)	\$72,001 (\$194,902)
Current Coach: Previous Head Coaching Experience	-\$57,331 (\$87,310)	\$56,024 (\$111,545)	-\$51,168 (\$79,603)	\$28,329 (\$94,386)
Current Coach: Previous NFL Coaching Experience	\$122,248 (\$115,394)	\$52,406 (\$170,368)	\$208,709* (\$109,936)	\$177,741 (\$155,135)

Current Coach: Hired from within	-\$198,830 (\$135,160)	-\$220,844 (\$205,030)	-\$116,277 (\$116,100)	\$13,824 (\$150,658)
Previous Coach: Fired or Voluntarily Resigned	\$18,518 (\$83,436)	-\$119,946 (\$121,367)	-\$15,658 (\$74,914)	-\$65,518 (\$96,187)
Previous Coach: Left for another head coaching position	-\$18,853 (\$100,971)	\$121,799 (\$1,149,819)	-\$69,683 (\$90,315)	-\$113,315 (\$117,370)
Previous Coach: Left for NFL	\$228,199** (\$118,223)	\$442,636*** (\$169,300)	\$203,590* (\$115,409)	\$305,910* (\$157,149)
Number of firm-year observations	413	413	504	504
Adj R <sup>2</sup>	0.5588	0.4392	0.5684	0.5320
F-statistic	--	8.90***	--	13.89***
Wald (chi <sup>2</sup> )	242.32***	--	315.73***	--
Hausman Test	p > chi <sup>2</sup> = 0.0677	Random Effects	p > chi <sup>2</sup> = 0.0207	Fixed Effects

**Table 4.2. Estimates of the Relation Between Maximum Compensation, University Characteristics, Head Coaches Characteristics, and Contract Characteristics.**

This table presents both random effects and fixed effects, results for the estimation of the relation between maximum compensation (*comp*) and University Characteristics, Head Coaches Characteristics, and Contract Characteristics. The OLS results are estimated using the equations below.

$$comp_{i,t} = \beta_0 + \beta_1 endow_{i,t} + \beta_2 att_{i,t} + \beta_3 rec_{i,t} + \beta_4 career_{i,t} + \beta_5 perwin_{i,t} + \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \quad (2.1)$$

$$comp_{i,t} = \beta_0 + \beta_1 endow_{i,t-1} + \beta_2 att_{i,t-1} + \beta_3 rec_{i,t-1} + \beta_4 career_{i,t} + \beta_5 perwin_{i,t} + \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \quad (2.2)$$

Statistical significance at the 10%, 5%, or 1% level is indicated by \*, \*\*, \*\*\*, respectively. The standard errors are reported in parentheses beneath the parameter estimates (standard errors are reported for OLS).

	Random Effects (2.1)	Fixed Effects (2.1)	Random Effects (2.2)	Fixed Effects (2.2)
Intercept	-\$144,816 (\$237,263)	-\$87,240 (\$424,124)	-\$245,200 (\$236,882)	-\$458,873 (\$384,855)
Endowment (000's)	\$0.04 (\$0.03)	-\$0.01 (\$0.053)	-- --	-- --
Lagged Endowment (000's)	-- --	-- --	\$0.13*** (\$0.03)	\$25.64*** (\$0.04)
Attendance	\$21.90*** (\$2.83)	\$22.93*** (\$6.52)	-- --	-- --
Lagged Attendance	-- --	-- --	\$22.47*** (\$2.60)	\$25.64*** (\$0.04)
Recruiting	\$84.90 (\$69.78)	\$52.89 (\$74.06)	-- --	-- --
Lagged Recruiting	-- --	-- --	-\$9.39 (\$60.85)	-\$19.16 (\$65.63)
Career (number of years)	\$13,280** (\$6,198)	\$17,261** (\$8,231)	\$11,958** (\$6,060)	\$15,236** (\$7,887)
Winning Percentage (Career)	\$3,677 (\$3,001)	\$2,983 (\$3,781)	\$5,684** (\$2,895)	\$5,333 (\$3,555)
Current Coach: Previous Employment (Fired or Voluntarily Resigned)	\$55,275 (\$172,968)	-\$2,234 (\$234,260)	\$55,850 (\$169,505)	\$20,737 (\$218,929)



Current Coach: Previous Head Coaching Experience	-\$62,133 (\$94,492)	-\$23,838 (\$119,820)	-\$90,329 (\$91,173)	-\$41,846 (\$110,111)
Current Coach: Previous NFL Coaching Experience	\$86,121 (\$125,251)	\$86,203 (\$190,362)	\$79,527 (\$125,221)	\$3,391 (\$184,761)
Current Coach: Hired from within	-\$142,406* (\$130,881)	\$52.95 (\$182,526)	-\$194,153 (\$128,675)	-\$93,089 (\$173,627)
Previous Coach: Fired or Voluntarily Resigned	\$61,723 (\$85,880)	-\$46,065 (\$119,742)	\$50,418 (\$84,312)	\$13,070 (\$112,200)
Previous Coach: Left for another head coaching position	-\$154,986 (\$103,881)	-\$195,656 (\$146,911)	-\$126,975 (\$102,262)	-\$197,895 (\$138,965)
Previous Coach: Left for NFL	\$205,562 (\$132,827)	\$314,554 (\$188,490)	\$181,303 (\$132,616)	\$169,736 (\$184,266)
Number of firm-year observations	460	460	453	453
Adj R <sup>2</sup>	0.5247	0.4878	0.5313	0.5078
F-statistic	--	3.08***	--	6.59***
Wald (chi <sup>2</sup> )	191.70***	--	220.39***	--
Hausman Test	p > chi <sup>2</sup> = 0.3645	Random Effects	p > chi <sup>2</sup> = 0.5459	Random Effects

**Table 4.3. Estimates of the Relation Between Maximum Compensation, University Characteristics, Head Coaches Characteristics, and Contract Characteristics.**

This table presents both random effects and fixed effects, results for the estimation of the relation between maximum compensation (*comp*) and University Characteristics, Head Coaches Characteristics, and Contract Characteristics. The OLS results are estimated using the equations below.

$$comp_{i,t} = \beta_0 + \beta_1 rev_{i,t} + \beta_2 career_{i,t} + \beta_3 perwin_{i,t} + \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \quad (3.1)$$

$$comp_{i,t} = \beta_0 + \beta_1 rev_{i,t-1} + \beta_2 career_{i,t} + \beta_3 perwin_{i,t} + \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \quad (3.2)$$

Statistical significance at the 10%, 5%, or 1% level is indicated by \*, \*\*, \*\*\*, respectively. The standard errors are reported in parentheses beneath the parameter estimates (standard errors are reported for OLS).

	<b>Random Effects (3.1)</b>	<b>Fixed Effects (3.1)</b>	<b>Random Effects (3.2)</b>	<b>Fixed Effects (3.2)</b>
Intercept	\$136,153 (\$232,836)	\$797,550** (\$356,536)	\$20,191 (\$200,698)	\$158,036 (\$256,344)
Revenue (000's)	\$32.66*** (\$2.53)	\$27.72*** (\$3.45)	-- --	-- --
Lagged Revenue (000's)	-- --	-- --	\$28.12*** (\$2.45)	\$35.19*** (\$3.20)
Career (number of years)	\$8,881 (\$5,799)	\$7,654 (\$7,653)	\$10,748** (\$5,262)	\$10,215 (\$6,545)
Winning Percentage (Career)	\$7,256*** (\$2,717)	\$5,297 (\$3,760)	\$7,159*** (\$2,478)	\$6,221** (\$3,046)
Current Coach: Previous Employment (Fired or Voluntarily Resigned)	-\$24,334 (\$172,864)	-\$547,265** (\$264,407)	\$121,847 (\$148,703)	\$40,542 (\$192,927)
Current Coach: Previous Head Coaching Experience	-\$44,959 (\$86,868)	\$50,313 (\$110,133)	-\$45,681 (\$79,067)	-\$23,713 (\$93,695)
Current Coach: Previous NFL Coaching Experience	\$76,973 (\$108,427)	-\$13,833 (\$149,915)	\$165,883 (\$103,678)	\$125,562 (\$138,788)

Current Coach: Hired from within	-\$212,993 (\$133,655)	-\$229,488 (\$202,631)	-\$125,104* (\$114,487)	-\$18,782* (\$148,641)
Previous Coach: Fired or Voluntarily Resigned	\$15,715 (\$83,494)	-\$127,247 (\$119,764)	-\$15,240 (\$74,603)	-\$70,841 (\$95,548)
Previous Coach: Left for another head coaching position	-\$1,608 (\$100,478)	\$124,042 (\$148,077)	-\$64,344 (\$89,761)	-\$94,453 (\$116,279)
Previous Coach: Left for NFL	\$232,865** (\$117,592)	\$411,681** (\$164,692)	\$191,715* (\$114,323)	\$265,676* (\$153,375)
Number of firm-year observations	421	421	513	513
Adj R <sup>2</sup>	0.5564	0.4425	0.5752	0.5525
F-statistic	--	9.92***	--	15.09***
Wald (chi <sup>2</sup> )	240.47***	--	317.49***	--
Hausman Test	p> chi <sup>2</sup> = 0.0523	Random Effects	p> chi <sup>2</sup> = 0.3165	Random Effects

**Table 4.4. Estimates of the Relation Between Maximum Compensation, University Characteristics, Head Coaches Characteristics, and Contract Characteristics.**

This table presents both random effects and fixed effects, results for the estimation of the relation between maximum compensation (*comp*) and University Characteristics, Head Coaches Characteristics, and Contract Characteristics. The OLS results are estimated using the equations below.

$$comp_{i,t} = \beta_0 + \beta_1 endow_{i,t} + \beta_2 att_{i,t} + \beta_3 career_{i,t} + \beta_4 perwin_{i,t} + \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \quad (4.1)$$

$$comp_{i,t} = \beta_0 + \beta_1 endow_{i,t-1} + \beta_2 att_{i,t-1} + \beta_3 career_{i,t} + \beta_4 perwin_{i,t} + \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \quad (4.2)$$

Statistical significance at the 10%, 5%, or 1% level is indicated by \*, \*\*, \*\*\*, respectively. The standard errors are reported in parentheses beneath the parameter estimates (standard errors are reported for OLS).

	Random Effects (4.1)	Fixed Effects (4.1)	Random Effects (4.2)	Fixed Effects (4.2)
Intercept	-156,337 (235,815)	-15,343 (409,743)	-240,203 (231,178)	-\$460,399 (\$374,252)
Endowment (000's)	0.04 (0.03)	-0.01 (0.05)	-- --	-- --
Lagged Endowment (000's)	-- --	-- --	0.13*** (0.03)	\$0.20*** (\$0.04)
Attendance	23.81*** (2.43)	22.86*** (6.33)	-- --	-- --
Lagged Attendance	-- --	-- --	22.32*** (2.34)	\$25.41*** (\$5.34)
Career (number of years)	12,889*** (6,147)	16,610** (8,043)	12,098** (5,988)	\$15,257 (\$7,743)
Winning Percentage (Career)	3,794 (2,958)	3,130 (3,680)	5,574** (2,815)	\$5,290 (\$3,453)
Current Coach: Previous Employment (Fired or Voluntarily Resigned)	37,649 (171,812)	-30,824 (230,200)	54,324 (167,138)	\$19,561 (\$216,469)
Current Coach: Previous Head Coaching Experience	-56,101 (94,129)	-25,645 (118,470)	-\$89,676 (90,364)	-\$41,537 (\$108,822)

Current Coach: Previous NFL Coaching Experience	63,852 (122,195)	36,751 (177,046)	\$79,659 (\$124,306)	\$6,848 (\$182,276)
Current Coach: Hired from within	-154,720 (130,031)	-9,016 (180,286)	-\$194,582** (\$125,925)	-\$98,994 (\$170,457)
Previous Coach: Fired or Voluntarily Resigned	59,811 (85,775)	-43,749 (118,410)	-\$50,162 (\$83,568)	\$12,176 (\$110,900)
Previous Coach: Left for another head coaching position	-144,063 (103,472)	-185,508 (144,974)	-\$126,848 (\$101,209)	-\$195,030 (\$137,221)
Previous Coach: Left for NFL	203,786 (132,672)	296,263 (185,175)	\$181,242 (\$131,652)	\$169,957 (\$182,233)
Number of firm-year observations	468	468	461	461
Adj R <sup>2</sup>	0.5282	0.5312	0.5399	0.5170
F-statistic	--	5.21***	--	7.34***
Wald (chi <sup>2</sup> )	188.24***	--	226.79***	--
Hausman Test	p > chi <sup>2</sup> = 0.2325	Random Effects	p > chi <sup>2</sup> = 0.2896	Random Effects

**Table 5.1. Estimates of the Relation Between Guaranteed compensation, University Characteristics, Head Coaches Characteristics, and Contract Characteristics.**

This table presents OLS, results for the estimation of the relation between guaranteed compensation (*guar*) and University Characteristics, Head Coaches Characteristics, and Contract Characteristics. The OLS results are estimated using Equation (1)

$$guar_{i,t} = \beta_0 + \beta_1 rev_{i,t} + \beta_2 rec_{i,t} + \beta_3 hcage_{i,t} + \beta_4 univtenure_{i,t} + \beta_5 perwin_{i,t} + \beta_6 win_{i,t-1} + \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \quad (5.1)$$

$$guar_{i,t} = \beta_0 + \beta_1 rev_{i,t-1} + \beta_2 rec_{i,t-1} + \beta_3 hcage_{i,t} + \beta_4 univtenure_{i,t} + \beta_5 perwin_{i,t} + \beta_6 win_{i,t-1} + \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \quad (5.2)$$

Statistical significance at the 10%, 5%, or 1% level is indicated by \*, \*\*, \*\*\*, respectively. The standard errors are reported in parentheses beneath the parameter estimates (robust standard errors are reported for OLS).

	Random Effects (5.1)	Fixed Effects (5.1)	Random Effects (5.2)	Fixed Effects (5.2)
Intercept	52.21*** (9.27)	32.71*** (12.50)	59.58*** (7.38)	51.65*** (8.91)
Revenue (000's)	-7.55e-8 (6.39e-8)	-1.09e-7 (7.79e-8)	-- --	-- --
Lagged Revenue (000's)	-- --	-- --	-8.60e-8 (5.82e-8)	-9.64e-8 (6.95e-08)
Recruiting	0.0013 (0.0013)	0.0014 (0.0014)	-- --	-- --
Lagged Recruiting	-- --	-- --	0.0030*** (0.0011)	0.0035*** (0.0012)
Head Coaching Age	0.33*** (0.15)	0.73*** (0.19)	0.20* (0.12)	0.39*** (0.14)
University Tenure	0.59*** (0.18)	0.84** (0.23)	0.71*** (0.16)	0.71*** (0.18)
Winning Percentage (Career)	0.27*** (0.10)	0.40*** (0.12)	0.19** (0.08)	0.27*** (0.09)
Winning Percentage (University)	-0.01 (0.01)	-0.10 (0.09)	-0.05 (0.07)	-0.07 (0.08)
Wins (Lagged)	-0.27 (0.21)	-0.30 (0.22)	-0.13 (0.20)	-0.18 (0.21)
Current Coach: Previous Employment (Voluntarily Resigned)	-1.25 (4.24)	-1.97 (0.60)	-3.33 (3.40)	-4.99 (4.27)

Current Coach:	1.99	3.58	0.31	0.25
Previous Head Coaching Experience	(1.98)	(2.46)	(1.70)	(1.99)
Current Coach:	-5.99	-13.22***	-3.90	-8.26**
Previous NFL Coaching Experience	(2.80)	(3.90)	(2.51)	(3.37)
Current Coach: Hired from within	-10.39***	-19.84***	-9.91***	-15.26***
	(3.44)	(5.30)	(2.81)	(3.70)
Previous Coach: Voluntarily Resigned	-0.08	-0.06	-2.02	2.88
	(1.99)	(0.03)	(1.68)	(2.11)
Previous Coach: Left for another head coaching position	1.95	5.37	1.71	3.37
	(2.44)	(3.40)	(2.05)	(2.56)
Previous Coach: Left for NFL	-1.09	-4.33	-1.10	-4.41
	(2.75)	(3.61)	(2.57)	(3.31)
Number of firm-year observations	413	413	504	504
Adj R <sup>2</sup>	0.0659	0.0585	0.0848	0.0648
F-statistic		3.70***	--	4.43***
Wald (chi <sup>2</sup> )	42.36***	--	60.69***	--
Hausman Test	p> chi <sup>2</sup> = 0.0846	Random Effects	p> chi <sup>2</sup> = 0.4262	Random Effects

**Table 5.2. Estimates of the Relation Between Guaranteed compensation, University Characteristics, Head Coaches Characteristics, and Contract Characteristics.**

This table presents OLS, results for the estimation of the relation between guaranteed compensation (*guar*) and University Characteristics, Head Coaches Characteristics, and Contract Characteristics. The OLS results are estimated using Equation (1)

$$guar_{i,t} = \beta_0 + \beta_1 endow_{i,t} + \beta_2 att_{i,t} + \beta_3 rec_{i,t} + \beta_4 hcage_{i,t} + \beta_4 univtenure_{i,t} + \beta_5 perwin_{i,t} + \beta_6 win_{i,t-1} + \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \quad (6.1)$$

$$guar_{i,t} = \beta_0 + \beta_1 endow_{i,t-1} + \beta_2 att_{i,t-1} + \beta_3 rec_{i,t-1} + \beta_4 hcage_{i,t} + \beta_4 univtenure_{i,t} + \beta_5 perwin_{i,t} + \beta_6 win_{i,t-1} + \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \quad (6.2)$$

Statistical significance at the 10%, 5%, or 1% level is indicated by \*, \*\*, \*\*\*, respectively. The standard errors are reported in parentheses beneath the parameter estimates (robust standard errors are reported for OLS).

	Random Effects (6.1)	Fixed Effects (6.1)	Random Effects (6.2)	Fixed Effects (6.2)
Intercept	56.94*** (7.68)	43.01*** (10.74)	59.72*** (7.78)	46.76*** (10.23)
Endowment (000's)	-9.41e-10 (6.41e-7)	-5.24e-7 (9.41e-7)	-- --	-- --
Lagged Endowment (000's)	-- --	-- --	-6.04 E-7 (6.31 E-7)	-1.81 E-06 (8.59 E-07)
Attendance	-8.11 E-6 (5.99 E-5)	1.09e-4 (1.25e-4)	-- --	-- --
Lagged Attendance	-- --	-- --	-2.59 E-5 (5.59 E-05)	1.15 E-4 (1.09 E-4)
Recruiting	0.0011 (0.0013)	0.0017 (0.0014)	-- --	-- --
Lagged Recruiting	-- --	-- --	0.0023 (0.0012)	0.0033*** (0.0013)
Head Coaching Age	0.20* (0.12)	0.38** (0.15)	-0.15 (0.12)	-0.33** (0.15)
University Tenure	0.75*** (0.17)	0.82*** (0.22)	0.81*** (0.17)	0.97*** (0.22)
Winning Percentage (Career)	0.19** (0.08)	0.30*** (0.09)	0.17** (0.08)	0.29*** (0.09)
Winning Percentage (University)	-0.03 (0.07)	-0.07 (0.08)	-0.02 (0.07)	-0.07 (0.08)
Lagged Wins	-0.18 (0.21)	-0.27 (0.22)	-0.11 (0.22)	-0.23 (0.22)
Current Coach: Previous Employment (Fired or Voluntarily Resigned)	-1.70 (3.54)	-3.49 (4.51)	-2.11 (3.55)	-5.51 (4.43)



Current Coach: Previous Head Coaching Experience	2.62 (1.80)	2.48 (2.19)	2.12 (1.80)	1.04 (2.14)
Current Coach: Previous NFL Coaching Experience	-2.37 (2.62)	-4.47 (3.58)	-1.59 (2.67)	-2.91 (3.66)
Current Coach: Hired from within	-9.20*** (2.82)	-14.45*** (3.84)	-9.80*** (2.87)	-17.28*** (3.86)
Previous Coach: Voluntarily Resigned	-3.15*** (1.75)	-5.01** (2.26)	-3.24*** (1.75)	-5.97*** (2.23)
Previous Coach: Left for another head coaching position	3.04 (2.16)	5.39* (2.83)	3.14 (2.18)	7.02** (2.84)
Previous Coach: Left for NFL	-3.35 (2.69)	-5.86* (3.46)	-2.54 (2.75)	-5.03 (3.53)
Number of firm-year observations	460	460	453	453
Adj R <sup>2</sup>	0.1025	0.0914	0.0978	0.0806
F-statistic	--	4.51***	--	5.10***
Wald (chi <sup>2</sup> )	63.62***	--	65.75***	--
Hausman Test	p> chi <sup>2</sup> = 0.2838	Random Effects	p> chi <sup>2</sup> = 0.0806	Random Effects

**Table 5.3. Estimates of the Relation Between Guaranteed compensation, University Characteristics, Head Coaches Characteristics, and Contract Characteristics.**

This table presents OLS, results for the estimation of the relation between guaranteed compensation (*guar*) and University Characteristics, Head Coaches Characteristics, and Contract Characteristics. The OLS results are estimated using Equation (1)

$$guar_{i,t} = \beta_0 + \beta_1 rev_{i,t} + \beta_2 comp_{i,t} + \beta_3 careertenu_{i,t} + \beta_4 univtenure_{i,t} + \beta_5 perwin_{i,t} + \beta_6 win_{i,t-1} \quad (7.1) \\ + \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t}$$

$$guar_{i,t} = \beta_0 + \beta_1 rev_{i,t-1} + \beta_2 comp_{i,t} + \beta_3 careertenu_{i,t} + \beta_4 univtenure_{i,t} + \beta_5 perwin_{i,t} + \beta_6 win_{i,t-1} \quad (7.2) \\ + \beta_m X1_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t}$$

Statistical significance at the 10%, 5%, or 1% level is indicated by \*, \*\*, \*\*\*, respectively. The standard errors are reported in parentheses beneath the parameter estimates (robust standard errors are reported for OLS).

	<b>Random Effects (7.1)</b>	<b>Fixed Effects (7.1)</b>	<b>Random Effects (7.2)</b>	<b>Fixed Effects (7.2)</b>
Intercept	48.72*** (8.91)	29.78*** (11.18)	56.96*** (7.17)	49.31*** (8.67)
Revenue (000's)	-6.20 E-8 (5.97 E-8)	-9.92 E-8 (7.67 E-8)	-- --	-- --
Lagged Revenue (000's)	-- --	-- --	-4.95 E-8 (5.60 E-8)	-8.24 E-8 (7.00 E-8)
Head Coaching Age	0.39*** (0.14)	-0.77*** (0.18)	0.25** (0.12)	-0.44*** (0.14)
University Tenure	0.56*** (0.18)	0.42* (0.22)	0.67*** (0.16)	0.63*** (0.18)
Winning Percentage (Career)	0.29*** (0.10)	0.41*** (0.12)	0.21*** (0.08)	0.29*** (0.10)
Winning Percentage (University)	-0.09 (0.08)	-0.10 (0.09)	-0.03 (0.07)	-0.05 (0.08)
Lagged Wins	-0.21 (0.21)	-0.25 (0.21)	-0.10 (0.20)	-0.15 (0.20)
Current Coach: Previous Employment (Fired or Voluntarily Resigned)	-0.95 (4.20)	-0.96 (5.93)	-3.00 (3.40)	-3.55 (4.29)
Current Coach: Previous Head Coaching Experience	2.13 (1.98)	3.81 (2.45)	0.54 (1.71)	0.63 (2.01)

Current Coach: Previous NFL Coaching Experience	-4.81 (2.67)	-11.59*** (3.62)	-3.15 (2.42)	-7.38** (3.16)
Current Coach: Hired from within	-10.97*** (3.36)	-20.25*** (5.23)	-10.07*** (2.78)	-14.61*** (3.72)
Previous Coach: Fired or Voluntarily Resigned	-0.18 (1.99)	-0.13 (2.76)	-2.14 (1.70)	-2.61 (2.13)
Previous Coach: Left for another head coaching position	2.02 (2.43)	5.24 (3.38)	1.50 (2.06)	2.51 (2.57)
Previous Coach: Left for NFL	-0.62 (2.73)	-3.53 (3.52)	-0.37 (2.57)	-3.39 (3.29)
Number of firm-year observations	421	421	513	513
Adj R <sup>2</sup>	0.0650	0.0381	0.0812	0.0572
F-statistic	--	4.01***	--	4.02***
Wald (chi <sup>2</sup> )	43.58***	--	54.15***	--
Hausman Test	p> chi <sup>2</sup> = 0.1044	Random Effects	p> chi <sup>2</sup> = 0.6281	Random Effects

**Table 5.4. Estimates of the Relation Between Guaranteed compensation, University Characteristics, Head Coaches Characteristics, and Contract Characteristics.**

This table presents OLS, results for the estimation of the relation between guaranteed compensation (*guar*) and University Characteristics, Head Coaches Characteristics, and Contract Characteristics. The OLS results are estimated using Equation (1)

$$guar_{i,t} = \beta_0 + \beta_1 endow_{i,t} + \beta_2 att_{i,t} + \beta_3 comp_{i,t} + \beta_4 careertenu_{i,t} + \beta_5 univtenure_{i,t} + \beta_6 perwin_{i,t} + \beta_7 win_{i,t-1} + \beta_m XI_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \quad (8.1)$$

$$guar_{i,t} = \beta_0 + \beta_1 endow_{i,t-1} + \beta_2 att_{i,t-1} + \beta_3 comp_{i,t} + \beta_4 careertenu_{i,t} + \beta_5 univtenure_{i,t} + \beta_6 perwin_{i,t} + \beta_7 win_{i,t-1} + \beta_m XI_{i,t} + \beta_n X2_{i,t} + \beta_p X3_{i,t} + \beta_q X4_{i,t} + \beta_r X5_{i,t} + \beta_s X6_{i,t} + \beta_u X7_{i,t} + e_{i,t} \quad (8.2)$$

Statistical significance at the 10%, 5%, or 1% level is indicated by \*, \*\*, \*\*\*, respectively. The standard errors are reported in parentheses beneath the parameter estimates (robust standard errors are reported for OLS).

	<b>Random Effects (8.1)</b>	<b>Fixed Effects (8.1)</b>	<b>Random Effects (8.2)</b>	<b>Fixed Effects (8.2)</b>
Intercept	55.81*** (7.59)	43.68*** (10.45)	59.40*** (7.62)	49.22*** (10.24)
Endowment (000's)	2.04 E-8 (5.36 E-7)	-4.83 E-7 (9.37 E-7)	-- --	-- --
Lagged Endowment (000's)	-- --	-- --	-5.69 E-7 (6.32 E-7)	-1.76 E-6** (8.67 E-4)
Attendance	2.04 E-6 (5.36 E-5)	8.95 E-5 (1.23 E-4)	-- --	-- --
Lagged Attendance	-- --	-- --	5.41 E-7 (5.17 E-5)	6.94 E-5 (1.09 E-4)
Head Coaching Age	0.23* (0.12)	0.40*** (0.15)	0.17 (0.12)	-0.35** (0.15)
University Tenure	0.72*** (0.17)	0.75*** (0.22)	0.76*** (0.17)	0.87*** (0.22)
Winning Percentage (Career)	0.20** (0.08)	0.31*** (0.10)	0.18** (0.09)	0.28*** (0.10)
Winning Percentage (University)	-0.02 (0.07)	-0.06 (0.08)	-0.91 (0.07)	-0.05 (0.08)
Lagged Wins	-0.17 (0.21)	-0.24 (0.21)	-0.08 (0.22)	-0.16 (0.22)
Current Coach: Previous Employment (Fired or Voluntarily Resigned)	-2.01 (3.52)	-3.50 (4.47)	-2.44 (3.54)	-4.66 (4.46)
Current Coach: Previous Head Coaching Experience	2.76 (1.80)	2.64 (2.18)	2.36 (1.80)	1.53 (2.16)

Current Coach: Previous NFL Coaching Experience	-1.91 (2.56)	-4.12 (3.40)	-2.07 (2.67)	-3.63 (3.69)
Current Coach: Hired from within	-9.57*** (2.80)	-14.67*** (3.82)	-9.79*** (3.82)	-16.12*** (3.87)
Previous Coach: Fired or Voluntarily Resigned	-3.25 (1.74)	-4.96** (2.25)	-3.35* (1.76)	-5.65** (2.25)
Previous Coach: Left for another head coaching position	3.13 (2.15)	5.43* (2.82)	3.01 (2.18)	6.17** (2.86)
Previous Coach: Left for NFL	-3.32 (2.68)	-5.76* (3.42)	-2.49 (2.75)	-5.00 (3.57)
<hr/>				
Number of firm-year observations	468	468	461	461
Adj R <sup>2</sup>	0.1077	0.0959	0.0805	0.0805
F-statistic	--	4.69***	--	4.70***
Wald (chi <sup>2</sup> )	63.77***	--	61.68***	--
Hausman Test	p > chi <sup>2</sup> = 0.4026	Random Effects	p > chi <sup>2</sup> = 0.2980	Random Effects

**Table 6. Summary of Multivariate Test Results**

This table presents a summary of multivariate test results from Models 1.1 through 8.2. Models finding support for the given hypothesis are indicated by an "X" followed by an indication of the supporting variables. Career tenure is indicated by "C", University tenure is indicated by "U", Revenue variables are indicated by "\$", Recruiting is indicated by "R", winning performance is indicated by "W", attendance is indicated by "A", and endowment is indicated by "E". Models failing to find support for the given hypothesis are indicated by an "O".

	<b>Hypothesis I: Maximum Compensation vs. Tenure</b>	<b>Hypothesis II: Guarenteed Compensation vs. Tenure</b>	<b>Hypothesis III: Maximum Compensation vs. Performance</b>	<b>Hypothesis IV: Guarenteed Compensation vs. Performance</b>	<b>Hypothesis V: Maximum Compensation vs. Size</b>	<b>Hypothesis VI: Guarenteed Compensation vs. Size</b>	<b>Hypothesis VII: Maximum Compensation vs.</b>	<b>Hypothesis VIII: Maximum Compensation vs.</b>
Model 1.1	X (C)	--	X (\$,W)	--	X F11(\$)	--	O	O
Model 1.2	O	--	X (\$,R,W)	--	X (\$)	--	O	O
Model 2.1	X (C)	--	X (A)	--	O	--	O	O
Model 2.2	X (C)	--	X (A,W)	--	X (E)	--	O	O
Model 3.1	X (C)	--	X (\$,W)	--	X (\$)	--	O	O
Model 3.2	X (C)	--	X (\$,W)	--	X (\$)	--	O	O
Model 4.1	X (C)	--	X (A)	--	O	--	O	O
Model 4.2	X (C)	--	X (A,W)	--	X (E)	--	O	O
Model 5.1	--	X (U)	--	X (W)	--	O	--	--
Model 5.2	--	X (U)	--	X (R,W)	--	O	--	--
Model 6.1	--	X (U)	--	X (W)	--	O	--	--
Model 6.2	--	X (U)	--	X (W)	--	O	--	--
Model 7.1	--	X (U)	--	X (W)	--	O	--	--
Model 7.2	--	X (U)	--	X (W)	--	O	--	--
Model 8.1	--	X (U)	--	X (W)	--	O	--	--
Model 8.2	--	X (U)	--	X (W)	--	X (E)	--	--

**Table 7. Cross Correlation Matrix**

	Age	yrsuniv	perunivwin	yrscr	percrwin	wlag1	fvr	head	nfl	within	pfvr	phead
age	1.0000	.	.	.	.	.	.	.	.	.	.	.
yrsuniv	0.5294	1.0000	.	.	.	.	.	.	.	.	.	.
perunivwin	0.1847	0.3738	1.0000	.	.	.	.	.	.	.	.	.
yrscr	0.6916	0.6460	0.2632	1.0000	.	.	.	.	.	.	.	.
percrwin	0.2436	0.2907	0.7963	0.3709	1.0000	.	.	.	.	.	.	.
wlag1	0.0409	0.2245	0.6343	0.1302	0.5265	1.0000	.	.	.	.	.	.
fvr	-0.2510	0.0991	0.1652	-0.1510	0.0069	0.1432	1.0000	.	.	.	.	.
head	0.3339	0.0480	0.1003	0.4919	0.2851	0.0467	-0.1525	1.0000	.	.	.	.
nfl	0.0930	-0.0804	-0.1057	0.0047	-0.0725	-0.0564	-0.2383	0.0437	1.0000	.	.	.
within	-0.0212	0.0271	0.2132	-0.1422	0.1828	0.1364	0.1062	-0.3065	-0.1801	1.0000	.	.
pfvr	0.0003	-0.1366	0.0695	-0.0600	0.0386	0.0961	-0.0035	-0.0778	-0.0533	0.1921	1.0000	.
phead	-0.0394	0.0089	0.2198	-0.0904	0.1098	0.1574	0.0070	-0.1592	-0.0129	0.2966	0.3185	1.0000
pnfl	0.0072	-0.1295	0.0069	0.0106	0.0370	0.0574	-0.0331	0.1382	-0.0884	-0.1320	-0.0404	-0.0330
avgatt	0.1045	0.1988	0.4451	0.2622	0.4367	0.4337	-0.0006	0.2804	0.1250	-0.0482	-0.0786	0.0026
avgattlag1	0.1186	0.2047	0.4328	0.2620	0.4307	0.4323	-0.0094	0.2862	0.1189	-0.0339	-0.0587	0.0116
points	0.0975	0.2030	0.4281	0.2338	0.4212	0.4018	0.0227	0.2955	0.0885	-0.0988	-0.0934	0.0687
pointslag1	0.1022	0.2178	0.4383	0.2323	0.4206	0.3813	0.0601	0.2794	0.0443	-0.0716	-0.0812	0.0507
endow	0.0943	0.0654	0.2042	0.2096	0.1327	0.2137	0.0141	0.1989	0.0293	-0.0333	-0.1128	-0.1247
endowlag1	0.0860	0.0593	0.1841	0.2081	0.1266	0.2142	0.0175	0.2079	0.0324	-0.0460	-0.1061	-0.1284
rev	0.0073	0.0685	0.3957	0.2007	0.3670	0.3883	-0.0257	0.3189	0.1006	-0.0839	-0.0520	-0.0357
revlag1	0.0168	0.0756	0.3861	0.2048	0.3681	0.4050	-0.0193	0.3292	0.0875	-0.0771	-0.0541	-0.0542
totalmax	0.1097	0.2024	0.3686	0.2547	0.3449	0.3827	0.0153	0.1970	0.1248	-0.1161	0.0026	-0.0445
perguar	0.1478	0.2915	0.1352	0.2411	0.1597	0.1040	-0.0052	0.1348	-0.0026	-0.1477	-0.0899	-0.0242
hcage	0.4335	-0.1196	-0.0890	-0.3510	-0.1470	-0.1095	-0.1370	-0.1809	0.1147	0.1499	0.0752	0.0617

	pnfl	avgatt	avgattlag1	points	pointslag1	endow	endowlag1	rev	revlag1	totalmax	perguar	hcage
age	.	.	.	.	.	.	.	.	.	.	.	.
yrsuniv	.	.	.	.	.	.	.	.	.	.	.	.
perunivwin	.	.	.	.	.	.	.	.	.	.	.	.
yrscr	.	.	.	.	.	.	.	.	.	.	.	.
percwin	.	.	.	.	.	.	.	.	.	.	.	.
wlag1	.	.	.	.	.	.	.	.	.	.	.	.
fvr	.	.	.	.	.	.	.	.	.	.	.	.
head	.	.	.	.	.	.	.	.	.	.	.	.
nfl	.	.	.	.	.	.	.	.	.	.	.	.
within	.	.	.	.	.	.	.	.	.	.	.	.
pfvr	.	.	.	.	.	.	.	.	.	.	.	.
phead	.	.	.	.	.	.	.	.	.	.	.	.
pnfl	1.0000	.	.	.	.	.	.	.	.	.	.	.
avgatt	0.2271	1.0000	.	.	.	.	.	.	.	.	.	.
avgattlag1	0.2218	0.9840	1.0000	.	.	.	.	.	.	.	.	.
points	0.1680	0.8458	0.8406	1.0000	.	.	.	.	.	.	.	.
pointslag1	0.1692	0.8290	0.8149	0.8024	1.0000	.	.	.	.	.	.	.
endow	-0.0023	0.4223	0.4138	0.3838	0.3762	1.0000	.	.	.	.	.	.
endowlag1	-0.0019	0.4304	0.4240	0.3938	0.3788	0.9699	1.0000	.	.	.	.	.
rev	0.2053	0.8637	0.8588	0.7924	0.7594	0.4966	0.5132	1.0000	.	.	.	.
revlag1	0.2149	0.8564	0.8627	0.7807	0.7588	0.4863	0.5109	0.9510	1.0000	.	.	.
totalmax	0.1625	0.6971	0.7036	0.6433	0.6186	0.3950	0.4206	0.7241	0.7230	1.0000	.	.
perguar	0.0324	0.1644	0.1568	0.1521	0.1448	0.1140	0.1094	0.1175	0.1180	-0.0694	1.0000	.
hcage	-0.0040	-0.1916	-0.1732	-0.1653	-0.1574	-0.1392	-0.1482	-0.2409	-0.2338	-0.1755	-0.1092	1.0000



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**Scope and Method of Study:** This dissertation examined National Collegiate Athletic Association Football Bowl Subdivision head football coach's contracts to investigate the determinants of both maximum compensation and guaranteed compensation. These relationships can lead to a better understanding of top corporate executive compensation packages. This study offers discernment into the configuration of NCAA FBS head coach's contracts and delivers insight into salary structure, performance incentives, non-performance incentives (perquisites), and termination and buyout agreements found within these contracts.

**Findings and Conclusions:** Results indicate maximum compensation is positively related to the performance of a university's football program and the head football coach. This supports corporate compensation studies that find executive compensation to be positive and significantly related to the performance of a firm. Results also indicate maximum compensation and guaranteed compensation is positively related to career and university tenure. Further, maximum compensation is found to be positively and significantly related to size, however guaranteed compensation is not significantly related to size.

ADVISER'S APPROVAL: Dr. Betty Simkins

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