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A Compensation Comparison: Determinants of Compensation for Chief Executive Officers and University Presidents

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CLAREMONT McKENNA COLLEGE
A COMPENSATION COMPARISON: DETERMINANTS OF COMPENSATION FOR
CHIEF EXECUTIVE OFFICERS AND UNIVERSITY PRESIDENTS

SUBMITTED TO
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AND
DEAN GREGORY HESS
BY
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FOR
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Abstract

The compensation of chief executive officers has long been an alluring and controversial topic, especially in light of the rapid rise in CEO earnings over the past several decades, which has provoked discussion on the manner in which CEOs are monetarily rewarded. Recently, university presidents have joined company CEOs in the public spotlight, as increasing levels of compensation for college presidents have also sparked scrutiny and debate. This paper examines the determinants behind CEO compensation and investigates the extent to which insights on these factors compare to the compensation determinants of chief executives at universities. Ultimately, this study finds similarities between the determinants of compensation for these two executive groups, specifically in the significance of organization size, type, and performance, as well as personal executive characteristics such as gender and tenure. The findings therefore suggest that these executives have similar job responsibilities, and the results also possess important insights and applications to relevant issues regarding executive compensation.

I. Introduction

Shirley Ann Jackson earned \$1.7 million in 2009 serving as a chief executive officer. Her enterprise, while not as large as others, possesses promising human capital and has received acknowledgements for its performance and the quality it provides to customers. As of 2009, Jackson had presided as the CEO for ten years, a rather long tenure in comparison to the average tenure among her peers. In her role as CEO, she must contribute to the financial health of her enterprise, working to cover and reduce expenses and build beneficial relationships with investors. She must also work to preserve and enhance the quality of her organization in order to ensure the continued success of her enterprise and her career. Additionally, she maintains a busy lifestyle aside from her fulltime position as a CEO. She serves on the Board of Directors of global companies such as FedEx and IBM, and she was appointed in 2009 by President Obama to serve on one of his advisory councils.

Shirley Ann Jackson is not the chief executive officer of a typical company. She is the CEO, or university president, of a private research university in New York named Rensselaer Polytechnic Institute. Her surprisingly large salary, and the salaries of many of her peers, has been garnering attention in the media recently, adding to the emerging and hotly debated discussion on rising levels of university president compensation. Yet, many details of her job description read like those of a company CEO, and as a director on many companies' boards, she has proven her success and intelligence in the business world in addition to her success in academia.

For those chief executive officers of businesses, compensation levels have notably and swiftly increased since the mid-1970s (Frydman and Jenter, 2010). This rapid rise in CEO compensation has provoked prolific debate regarding the process for setting compensation, the

determinants involved in compensation decisions, and the relative importance of these determinants. Not surprisingly, many companies have faced criticism for the salaries they award their CEOs, especially in relation to the average employee's salary at a company. Companies have defended their pay practices by arguing that CEO pay reflects the immense value a CEO adds to the company and is necessary to attract and retain a high-quality CEO amid the competitive market for skilled executives (Gomstyn, 2010).

While the attention and scrutiny surrounding the rise in CEO compensation has existed for several decades, university president compensation has only recently stepped into the headlines. Universities such as Rensselaer have publicly defended the compensation awarded to their presidents, with Rensselaer touting Jackson's accomplishments in government, academia, and business and stating that "the value she contributes to the Institute far exceeds the amount she is paid"(Walker, 2009). Many of Jackson's peers have proven to be successful in the business world as well. Stanford president John Hennessy, who earned \$1.1 million in 2009, co-founded a company that manufactures technology, and he also serves as a board member of companies such as Google and Cisco Systems. Connecticut College president Leo Higdon, who earned approximately \$493,000 in 2009, formerly served as the vice chairman for an investment bank's global division. Given that a university represents a unique type of business, it is not surprising that colleges require successful and accomplished presidents as their leaders and that these leaders have found success in fields outside of academia, such as in the business world. Therefore, the public attention given to CEO and university president salaries, as well as the noted similarities between their jobs, begs the question: do the determinants of CEO salaries compare to those of university president salaries? The purpose of this study is to analyze the compensation determinants for these two groups of executives and attempt to draw comparisons

between their compensation factors, which include organization type, size, and performance, as well as the executive's gender and tenure.

This paper proceeds as follows. Section II provides a review of the academic literature on the determinants of CEO and university president compensation. Section III discusses the data used to test the study's hypotheses. Section IV reveals and analyzes the results of the CEO and university president compensation regressions. Section V contains the paper's conclusion and discusses limitations and further aspects of study.

II. Literature Review

As executive salaries have substantially risen over the past several decades, CEO compensation has become a popular topic not only in the media but also in academic research. Certain scholars have observed firm-level characteristics and their effect on CEO compensation, finding that company size greatly affects CEO salary and that CEOs are actually compensated for firm performance. Researchers have also investigated the influence of gender on CEO compensation, a factor that is especially fascinating to consider because CEO salaries should theoretically not be based on such an uncontrollable and discriminatory determinant. Furthermore, the newly emerging literature on university president compensation has focused on many similar determinants of executive compensation, and several scholars have importantly linked research on university president earnings back to CEO compensation.

Gabaix and Landier (2008) heavily focus on the correlation between compensation and firm size. The authors use total market value as a proxy for company size. In their study of firms from 1992 to 2004, they find that the rise in CEO compensation can be substantially explained by firm size. To explain the reasoning behind this phenomenon, they posit that larger firms require a CEO with more talent, which causes bigger firms to offer higher compensation to

attract this talent. Thus, CEO talent, which companies measure by compensation, and firm size become positively correlated due to labor market demand.

Nagel (2010), however, argues against Gabaix and Landier's idea that competition among large firms to attract top performing managers is substantially responsible for the increase in CEO pay. He points out several biases in Gabaix and Landier's data. He adjusts data of S&P 500 CEOs from 1980 to 2003 to exclude these biases. Using this adjusted data, he then finds that labor market demand only explains one-third or less of the increase in CEO compensation since 1980.

Delving into another aspect of executive pay, Kaplan and Rauh (2010) study CEO salaries and firm performance between 1999 and 2004 to determine if CEOs are actually compensated based on performance. They place all ExecuComp firms into groups depending on company size, which they measure by firm assets. They use stock price as a proxy for firm performance, calculating the "total return to the firm's stock less the value-weighted performance of the firm's industry" over the past year (Kaplan and Rauh, 2010; 37). In his subsequent paper, Kaplan (2012) summarizes their results, explaining that CEOs "in the top quintile of actual pay" in each group preside over companies that are the top performers in their industry (Kaplan, 2012; 23). Their results thus demonstrate the positive correlation between firm performance and chief executive compensation.

Adams et al. (2007) also investigate firm-level characteristics and their effect on CEO compensation. They discovered that company size and rate of return on assets (ROA) positively influence CEO compensation. Their research on company size supports that of Gabaix and Landier, and their findings on firm performance concur with the research of Kaplan and Rauh. While Kaplan and Rauh use stock price as a proxy for firm performance, Adams et al. use ROA

as their proxy for the performance of the company. The fact that both of these measures for performance show a positive correlation with CEO compensation further supports the link between executive salary and firm performance.

While Adams et al. observe company size and performance in their research, they primarily focus on another fascinating aspect of CEO compensation: gender. Is it possible that in today's world, a talented CEO could be paid more or less due to gender? To answer this question, the authors observe the compensation of 1,500 U.S. firms from 1992 to 2004. Ultimately, they find no statistically significant difference in CEO compensation based on gender. They did, however, find evidence of an earnings disparity between top female and male executives below the level of the CEO, which suggests that the earnings gap only dissipates once women reach the top of a company. Encouragingly, their study did show that this gap in earnings has decreased over time.

While CEO compensation has been scrutinized and studied by many scholars, there also exists a budding field of academic literature on university president compensation, especially in light of the recent media attention surrounding presidents' salaries. In their article, Banker et al. (2009) observe university president compensation for 279 private universities from 2001 to 2006. They find that a president's ability, measured by tenure, age, background as a tenured professor, prior presidency, and law degree, has a positive impact on compensation. They also compute a measure for university stature, comprised of the quality of students and professors, tuition, and endowment, and find that this factor has a positive effect on salary. Consistent with other studies, large enrollment favorably affects salaries as well. Interestingly, the effect of gender is insignificant. Overall, then, they find that factors concerning the president's human capital and the university's complexity or stature have the most important impact on compensation.

Even more fascinating than research on the determinants of university president earnings is research that compares these determinants against the factors of CEO compensation. In their paper, Chen and Huang (2009) observe the salaries of college presidents from 543 private colleges from 1997 to 2004. Their study first attempts to examine how university presidents' compensation levels compare to that of corporate CEOs. The authors note that while the subject of presidential compensation has recently gained attention in the media and in the government, college presidents on average receive one-third of the compensation of CEOs who run corporations of comparable size. They note, however, that this pay gap is mostly due to stock options included in CEO compensation. Using data of private colleges from 2004, they then analyze the determinants of college presidents' compensation with regards to human capital and job complexity. They ultimately find that similar to research on CEO compensation, the salaries for college presidents indeed increase with more human capital and job complexity. For college presidents, these two factors are measured by size of enrollment, revenues, and the prestige of the school, where 75th percentile student SAT scores and U.S. News & World Report rankings served as proxies for prestige. Interestingly, they find that college endowment possesses a negative coefficient and is significant at only the 10% level. They suggest that a school with a lower endowment perhaps needs to incentivize its president to work hard at fundraising, especially since most presidents cite fundraising as their most time-consuming activity.

Chen and Huang highlight the earnings gap between CEOs and university presidents who are compensated according to similar criteria. In his article, Cornell (2004) not only compares the salaries between these two groups of leaders, but he uses his findings to critique CEO compensation. Cornell observes salaries for S&P 500 CEOs and for presidents of 17 top private research universities between the years of 1994 and 2000. He finds that CEO compensation is

vastly larger than university president compensation; for example, S&P 500 CEOs in total received 33 times the salaries of university presidents in 2000. He argues that leading private universities require chief executives who possess “talent, skill, and a record of accomplishment comparable to that of the people chosen to run America’s major corporations” (Cornell, 2004; 4). He further asserts that with the large pool of candidates available to corporations, “highly trained, skilled, and motivated leaders could be located even if the current level of compensation were cut in half” (Cornell, 2004; 12). Cornell finds it difficult to believe that substantially more money is required for companies to attract qualified CEOs when successful and complex universities find spectacular leaders for a fraction of the price.

This study extends the research of the aforementioned scholars by observing determinants of CEO and university president compensation for a more recent time period. Additionally, other studies have observed compensation levels between CEOs and university presidents, or they have conducted their own study on the determinants of university president compensation and then linked these determinants to those of CEO compensation proposed by other papers. This paper, however, conducts a more in depth study on the factors of compensation by collecting data for both CEOs and university presidents and performing a comparison based on the regression results for each group of executives. This investigation also expands prior research on the similarities between CEO and university president earnings by examining the business aspect of universities: an endowment per student variable will represent the financial health of a college, and a return on investment variable that was recently developed will measure the student investment benefit for each university. With this set of variables collected specifically for the comparison between businesses and universities, it will be interesting to observe the extent to which compensation determinants are similar between the two groups of executives. Ultimately,

this study should yield interesting information regarding executive compensation that may justify, critique, or provide insight on the topic of CEO and university president compensation.

III. Data Methodology and Description

III.i Data Collection: Chief Executive Officers and Companies

For data regarding CEO and company information, the Compustat ExecuComp database provided the following information for fiscal year 2009: CEO compensation, the number of years the executive has held the CEO title, the gender of the CEO, and the company's North American Industrial Classification System (NAICS) code. The measure used for CEO compensation is listed as "TDC1" in ExecuComp. TDC1 consists of the executive's salary, bonus, other annual compensation, total value of restricted stock granted, total value of stock options granted (using Black-Scholes), long-term incentive payouts, and all other total compensation. As this paper focuses on the determinants of compensation for fiscal year 2009, TDC1 represents the best measure of earnings for this study because it embodies the total compensation that the board intended to award its CEO for a certain fiscal year. In regards to industry, the NAICS uses numerical codes to classify each company by industry. Each code can consist of up to six digits, with each subsequent digit more specifically classifying the company. In order to reasonably create binary variables based on industry code, only the first two digits of each company's NAICS code was used for this study. For example, a company with an NAICS code of 33 classifies as a manufacturing company.

As tenure and gender represent executive characteristics rather than firm-level characteristics, it will be interesting to test these variables and determine their effect on compensation. A longer tenure implies that a CEO has more experience as the head of the company and has performed well in this position. This study thus hypothesizes that CEOs with longer tenures receive more

compensation. Also, while Adams et al. (2007) find gender to be statistically insignificant as a determinant of CEO salary, this paper will also test this variable to discover if this finding holds true for the executives in this study.

Compustat Annual Updates provided information on total assets, net income, and revenue for each company. Total assets and net income will be used to calculate firm ROA, with total assets representing the average of beginning and ending assets for fiscal year 2009. ROA will serve as a measure of firm performance. Revenue will serve as a proxy for firm size, as a firm with more revenues is presumably a larger, more productive firm. While the number of employees may accurately represent company size in many cases, there exist firms that are very productive yet possess a small number of employees in relation to the company's productivity. In these cases, measuring firm size by the physical number of employees can be misleading. Therefore, a firm's revenues more precisely define the size of a firm in relation to its peers and in regards to the company's productivity and complexity. As a bigger company is more complex to govern and requires a CEO with more ability, a larger firm will likely offer higher pay to attract a skilled CEO. Furthermore, a company with more revenues possesses the resources to reward more compensation to its CEO.

Information on monthly holding returns to each company's stock was found on the CRSP database and converted into yearly holding returns for the year 2009. In order to measure the relative stock return of each company, the value-weighted stock performance of a firm's industry was subtracted from the firm's stock return. Following the precedence set by Kaplan and Rauh (2010), Fama-French industry returns were used to find the value-weighted returns for each industry. In addition to the return on assets measure, each company's industry-relative stock return will be used as a proxy for firm performance. This study hypothesizes that on average,

CEOs whose companies have a higher ROA and industry-relative stock return will receive more in compensation, as CEOs are presumably paid for their firm's performance.

As a vast number of companies exist in the market, it is reasonable and necessary to place a scope on the companies included in this study. Therefore, information was collected on only S&P 500 companies. Not only is the S&P 500 a commonly used market benchmark, but there is also a precedence for using S&P 500 companies in CEO research. For example, Cornell (2004), Gabaix and Landier (2008), and Nagel (2010) all use S&P 500 companies in their studies on CEO compensation. However, most S&P 500 companies are large corporations run by CEOs who have a history of success. The results of this study, therefore, apply best to S&P 500 firms or to companies of similar stature and characteristics.

As a final step in compiling the CEO dataset, outliers were removed from the data. Outliers can distort the CEO regression results because the OLS regression model is sensitive to outliers. Ultimately, CEOs with compensation grossly disproportionate to their company's industry-relative stock return were omitted from the final dataset. Several criteria were established in order to systematically remove outliers. CEOs who received compensation below the 25th percentile yet had an industry-relative stock return of over 130 percent, which is above the 95th percentile, were considered outliers. Other CEOs with higher levels of compensation that were still below-average were removed if they possessed a stock return of over 200 percent, which places them in the 99th percentile of stock returns. Outliers were also identified through graphing the relationship between all CEO compensation levels and stock returns. For example, CEO Trevor Fetter, who earned \$9.3 million in 2009 yet possessed a stock return of 333%, was identified as a clear outlier when displayed on a graph with his peers. Additionally, the two lowest-paid CEOs had salaries and stock returns that warranted removal from the data. Steve

Jobs earned just \$1.00 as the CEO of Apple in the 2009 fiscal year. His company's stock return for 2009, however, was 75%, a very high return given that the mean industry-relative stock return for all of the companies in the data is approximately 9.4%. Similarly, Fossil CEO Kosta Kartsois earned the lowest salary of \$0, yet his company's industry-relative stock return was 89%. These CEOs such as Steve Jobs appear to be motivated by factors other than money, and therefore, they follow a different compensation model than the one presented in this study. Besides those with low pay disproportionate to their stock returns, CEOs Carol Bartz of Yahoo and Lawrence Ellison of Oracle received two of the highest paychecks in 2009, yet their stock returns relative to their pay levels represented clear outliers when graphed among their S&P 500 peers. These two CEOs also do not represent serious observations and were omitted from the data. After eliminating these outliers, as well as CEOs with missing observations, there remain 468 CEOs that will be included in this study. For a summary of the variable descriptions and sources discussed in this section, refer to Table 1 in the data appendix.

III.ii Descriptive Statistics: Chief Executive Officers and Companies

The CEO with the highest compensation of approximately \$43 million is Leslie Moonves of CBS Corporation. Michael Jeffries of Abercrombie & Fitch earned the second highest pay at \$36.3 million. The CEO with the lowest compensation of \$32,171 is Kenneth Lewis at Bank of America. The second lowest compensation amount is that of Vikram Pandit, the CEO of Citigroup, who earned \$128,751 in the 2009 fiscal year. Females represent approximately 2.8% of the CEOs in the data, accounting for 13 out of 468 CEOs. The highest paid female is Irene Rosenfeld, the chief executive of Kraft Foods, Incorporated, who earned about \$22.1 million in fiscal year 2009. The average tenure for the CEOs is about 6 years, with a median tenure of 5 years.

Approximately 40% of the companies in the data classify as manufacturing companies under the North American Industrial Classification System (NAICS). The NAICS labels approximately 15% of the companies in the dataset under the finance and insurance industry. The third largest industry is the information industry, which represents almost 9% of companies in the data. Refer to Tables 2 and 3 for complete summary statistics.

III.iii Data Collection: University Presidents and Colleges

Data regarding university president compensation and institution type was found on the Chronicle of Higher Education's website. For both private and public university presidents, the Chronicle lists salaries in terms of the school year. Therefore, compensation data for the 2008-2009 academic year, which ended June 30, 2009, was used for this study. Similar to observing the effect of different industries on CEO compensation, this study will observe the effect of institution type on president compensation. A binary variable called "private" was created to account for the two different university types of private and public.

The Chronicle of Higher Education also provided information on universities' endowments for the year ended June 30, 2009. For universities with missing endowments, information was found on the College Sustainability Report Card website or The Integrated Postsecondary Education Data System (IPEDS). In order to more accurately access the effect of endowments, each school's endowment should be measured against a base such as school size. Therefore, each endowment level was divided by the college's total enrollment to create an endowment per student measure. In periodic surveys conducted by the American Council on Education, university presidents have continually cited fundraising as a top priority and stated that this activity is one of the most time consuming of their jobs (American Council on Education, 2012). Consequently, this study hypothesizes that a president is better compensated for a higher

endowment per student, as a greater endowment per student is reflective of a president's ability to successfully raise funds and manage a large amount of investments. Additionally, a school with a large endowment per student probably possesses the ability to hire a competent president and pay this executive well for his or her performance. Furthermore, endowment per student may also serve as an indicator of university stature, as older and more prestigious universities such as an Ivy League school most likely have a higher endowment per student. As Chen and Huang (2009) use total endowment level in their study and find that this variable possesses a negative coefficient, it will be interesting to observe how the endowment results and hypothesis of this study compare to their findings.

Unfortunately, information for university presidents is not compiled into an orderly database similar to Compustat. Therefore, data on presidents' tenure and gender was hand collected from university websites. Presumably, a university president with a longer tenure is successful in performing his or her responsibilities and highly regarded at the university. Based on this reasoning, this study expects to find a positive correlation between tenure and compensation. In considering gender and its effect on compensation, it will be interesting to observe whether a salary disparity exists between female and male presidents, especially in relation to whether this compensation gap exists for company CEOs. Information on the religious affiliation of university presidents was also accounted for, as several of the presidents hold the title of "Reverend," "Father," or "Brother." In observing the compensation levels among the university presidents, ordained presidents received many of the lowest salaries. This study therefore hypothesizes that religious titles are a statistically significant factor of compensation, perhaps because ordained presidents are willing to accept lower compensation due to religious beliefs.

Since 2010, PayScale has released a yearly report on the return on investment (ROI) for select colleges. This ROI measure calculates the profitability of a student's investment in a college. The 2010 report computes university ROI by measuring the investment gain, which is the projected salary for a 2009 graduate, against the cost of the investment, which is the total tuition paid by a 2009 college graduate. As this study observes university president compensation for the academic year ending in 2009, using the 2010 report is appropriate because it calculates ROI based on information from 2009. Once PayScale computes the ROI of each university, the colleges are then ranked according to their ROI, with a "1" designating the college that represents the best return on investment. Therefore, this study expects to find a negative relationship between ROI rank and president compensation, as presidents whose universities represent poorer investments for students are given higher numbers on the list.

The Integrated Postsecondary Education Data System (IPEDS) provided information on enrollment numbers, which will serve as a proxy for the physical size of a college. Many reports and databases, including IPEDS, provide only fall enrollment for a selected year. Consequently, this study uses Fall 2008 enrollment under the assumption that enrollment in Fall 2008 approximates student numbers for the entire school year. Using Fall 2008 enrollment therefore assumes that presidents were compensated in 2009 based on the number of students they were responsible for managing during the 2008-2009 academic year. This study hypothesizes that presidents who oversee larger schools, as indicated by a larger student body, have a more complex job and are thus compensated with a higher salary.

As a proxy for prestige, Forbes's 2009 "America's Best Colleges" list was used to assign a numerical ranking to each college in the study, with a "1" designating Forbes's best college. Similar to ROI rank, the correlation between Forbes rank and compensation is expected to be

negative. To examine another aspect of prestige in addition to school ranking, this study accounts for the quality of students as measured by SAT scores. The SAT scores used in this study represent a school's 75th percentile score for the critical reading and math sections of the exam. A lack of available information requires the use of only the reading and math scores, but it is assumed that a college's 75th percentile score on the writing section is comparable to the 75th percentile scores on the other two sections of the test. For example, a college with a high 75th percentile score on the reading and math sections presumably has a high 75th percentile writing score as well, as the students who earned these high scores likely performed well on the writing section, too. There exists no standard in the literature for measuring college SAT scores, but this paper follows Chen and Huang (2009) in reporting the 75th percentile score for each college. It is assumed that a school with a high 75th percentile score enrolls higher quality students and is a more prestigious school. A president who oversees such a distinguished school typically possesses a history of success and is also responsible for maintaining or improving the school's stature, and therefore, this president likely receives higher compensation than presidents of less prestigious schools.

The process of merging information from multiple databases and sources unfortunately limits the amount of universities that can be included in the study, as different sources provide information on different colleges. Missing information for colleges was sometimes found on university websites; otherwise, colleges with missing observations were removed from the study. After collecting all of the variables and omitting universities with missing observations, there remain 257 public and private universities that will be included in this study. Refer to Table 4 for a summary of the variable descriptions and sources discussed in this section.

III.iv Descriptive Statistics: University Presidents and Colleges

The university president with the highest compensation during the 2008-2009 academic year is Robert Turner, the president of Southern Methodist University, who earned \$2.8 million. The president who earned the least during the 2008-2009 school year is Reverend Joseph McShane, the president of Fordham University, who earned \$8,322. In fact, supporting the proposal that ordained presidents accept less compensation, the four lowest salaries in the dataset are those of presidents with religious titles. The average compensation for university presidents during the 2008-2009 academic year is about \$586,000. Approximately 17% of the presidents in the dataset are female, or 44 out of 257 presidents. The highest paid female president is Shirley Ann Jackson, who received \$1.7 million as the president of Rensselaer Polytechnic Institute. Approximately 62% of the universities in this study are private, or 158 out of the 257 universities. The average tenure for the college presidents is approximately 7 years, which is slightly higher than the average CEO tenure of about 6 years. The president with the longest tenure is Dennis Murray, who had been president of Marist College for 30 years as of 2009. Refer to Table 5 for complete summary statistics.

IV. Data Analysis and Regression Results

IV.i CEO Compensation

As company and CEO data have been collected for fiscal year 2009, a cross-sectional regression will be used to analyze the data. Total CEO compensation will serve as the left-hand side variable of the regression, and the aforementioned variables such as revenues and gender will serve as the right-hand side variables. The equation below presents the regression results for the determinants of CEO compensation. The model includes all variables of interest in the study, excluding one industry binary variable to prevent problems with linear dependence. As there are

many industry variables included in the regression model, the industry variable results are not listed but are available upon request from the author.

CEO Compensation Regression Results¹:

$$\begin{aligned}
 \text{compensation} = & 1910.87 + 1737.36 \text{ female} + 107.59^{**} \text{ tenure} + 0.059^{***} \text{ revenues} + 10.58^{**} \text{ return} + 62.74^{**} \text{ roa} \\
 & \quad (401.07) \quad (1526.48) \quad (52.05) \quad (0.013) \quad (5.53) \quad (34.81) \\
 & n = 468 \quad R^2 = .177 \quad \text{SER} = 5562.50
 \end{aligned}$$

In the regression model, many of the binary variables representing different industries possess coefficients that are significant. These results suggest that a company's industry matters in determining CEO compensation, likely because different industries have their own standards for CEO compensation levels as well as their own complexities that influence the typical level of executive pay. Indeed, many firms consider the salaries of CEOs from peer companies when setting the salaries for their own CEOs.

In agreement with the results of Adams et al. (2007), this study finds that the coefficient for gender, while positive, is statistically insignificant. This finding supports the hypothesis that a large earnings gap does not exist between men and women, at least once they have reached the top position of CEO. The coefficient on tenure, however, is significant at the 5% level, which suggests that the amount of time a CEO has held his or her position positively influences compensation. The magnitude of the tenure coefficient indicates that on average, a CEO receives approximately \$107,590 more for every one-year increase in tenure.

As the coefficient on revenues is positive and significant at the 1% level, this study endorses the common notion that bigger firms offer more compensation to their CEOs. Specifically, the magnitude of the revenues coefficient suggests that an increase of \$10 billion in firm revenue is

¹ Robust standard errors in parenthesis; *denotes 90% confidence, **denotes 95% confidence, ***denotes 99% confidence.

associated with a \$590,000 increase in compensation. A CEO whose company is larger, as indicated by the amount of firm revenue, presumably has a more complex job that requires greater skill. Companies therefore must offer higher compensation to attract and retain a talented CEO. Additionally, a company with more revenues possesses the financial ability to better compensate its CEO.

Supporting the hypothesis that CEOs are paid for performance, the coefficient for return on assets is positive and significant at the 5% level. Specifically, this coefficient suggests that an increase of 10 percentage points in firm ROA is correspondent with a \$627,400 increase in compensation. In addition, industry-relative stock return possesses a coefficient that is significant at the 5% level. The coefficient suggests that, on average, for every increase of 10 percentage points in a firm's industry-relative stock return, a CEO receives \$105,800 more in compensation. These findings support the reasoning that a CEO should be paid for his or her impact on the company, and in turn, a company that performs better should be financially able to reward its CEO well. These results also suggest that while both measures for firm performance are significant, an increase in ROA possesses a larger effect on compensation than a stock return increase of the same amount.

Overall, the results support the hypothesis that on average, CEO compensation increases with an increase in tenure, firm size, and firm performance. Additionally, the regression model suggests that a company's industry possesses influence over CEO pay. Lastly, as suggested by other academic research on the subject, gender is not statistically significant in determining CEO compensation.

IV.ii University President Compensation

Similar to the regression for CEO compensation, university president data has been collected for a single academic year, and thus a cross-sectional regression is used to analyze the data. Total university president compensation serves as the left-hand side variable of the regression, and the aforementioned variables such as enrollment and tenure serve as right-hand side variables. The following table displays the regression results for the determinants of university president compensation:

University President Compensation Regression Results			
	Dependent variable = compensation (thousands)		
	(1)	(2)	(3)
Independent variables			
Private college	334.27*** (57.96)	445.95*** (64.62)	472.24*** (61.54)
Female president	17.54 (45.13)	11.65 (47.91)	43.99 (46.33)
Tenure	11.93*** (4.78)	12.14*** (4.90)	13.37*** (4.89)
Religion	-409.92*** (82.71)	-417.09*** (80.89)	-432.99*** (84.37)
Enrollment	0.013*** (0.002)	0.017*** (0.003)	0.017*** (0.003)
Endowment per student	0.000133 (0.0001)	0.000362*** (0.0001)	-----
ROI rank	-0.418*** (0.174)	-----	-----
SAT score	0.717*** (0.240)	-----	-----
Forbes rank	0.233* (0.152)	-----	-0.253** (0.116)
R-squared	0.389	0.332	0.310
SER	290.56	301.81	306.91

Note: Robust standard errors in parenthesis; *denotes 90% confidence, **denotes 95% confidence, ***denotes 99% confidence.

The binary variable for private colleges possesses a highly positive coefficient and is statistically significant at the 1% level in all models. According to model (1), private college presidents receive on average \$334,270 more in compensation. Private colleges often require higher tuition and rely less heavily on state funding, which perhaps allows them to better compensate their president. Likewise, the CEO regression results indicate that a company's industry is an influential factor in determining compensation. Therefore, the results suggest that firm or institution type is an important element of both CEO and university president earnings.

With regard to presidential characteristics, gender carries a positive coefficient but is statistically insignificant in all regression models. This finding suggests that similar to company CEOs, a large salary disparity does not exist between male and female university presidents. Tenure, however, is positive and significant at the 1% level in all university president models, which indicates that presidents who have served longer and thus have more experience at a university receive more in compensation. According to model (1), salary rises \$11,930 for every additional year of tenure. Additionally, the religion variable is negative and statistically significant at the 1% level in all models, suggesting that ordained presidents indeed accept less compensation to perform their duties than presidents with no religious title. The magnitude of the religion coefficient in model (1) indicates that on average, ordained presidents earn \$409,920 less than presidents without a religious title.

Supporting the hypothesis that presidents who manage larger schools have a more complex job and are thus compensated with a higher salary, the enrollment variable is positive and significant at the 1% level in all models. The magnitude of the coefficient in model (1) reveals that on average, an increase in the student body of 1,000 is correspondent with a \$13,000 increase in university president compensation. This result forges another comparison between

CEO and university president compensation, as company size is a significant variable in the CEO regression.

The regression results also suggest that the performance of the school plays a significant role in the president's compensation. Two of the proxies for prestige, ROI rank and the 75th percentile SAT score, are both significant in model (1). ROI rank is negative and significant at the 1% level in model (1), which supports the theory that a president whose college represents a poorer investment for a student receives less compensation. On the other hand, a college that enables students to receive the most out of their education duly rewards the president who presides over the school and plausibly helps maintain the school's quality of education. The ROI coefficient suggests that on average, a president's salary will increase by \$4,180 if his or her college advances by 10 places on the ROI list. In addition, the 75th percentile SAT score is positive and significant at the 1% level. The magnitude of the coefficient indicates that on average, for each 10-point increase in a college's 75th percentile SAT score, university president compensation increases by \$7,170. Overall, these findings propose that presidents who preside over colleges that provide a worthwhile education and possess valuable human capital receive higher compensation. A president must work to maintain or improve the college's caliber in order to attract quality students and continue to enhance the university's stature, and the president is duly compensated for the achievement of this feat. Furthermore, a prestigious school is likely able to hire a better president who possesses the ability to maintain the college's caliber, yet a university will probably need to attract this skilled president through higher compensation. Thus, distinguished colleges with the most valuable educations presumably hire a president with a track record of success and pay this executive well to oversee such a reputable university.

Interestingly, endowment per student becomes statistically significant at the 1% level in model (2), which excludes the SAT score, ROI rank, and Forbes rank variables from the regression. This study hypothesized that endowment per student reflects a president's performance and ability, as university presidents are largely responsible for fundraising and spend a large portion of their time obtaining and managing donations. In addition, this study proposed that endowment per student may also represent the prestige of an institution. Indeed, the significance of endowment per student in model (2) as opposed to model (1) suggests that there exists an overlap between the excluded variables and endowment per student as measures of prestige. As endowment per student also serves as a proxy for financial health and presidential performance, the positive and significant coefficient for endowment per student in model (2) thus suggests that once the model no longer controls for certain measures of prestige, the fundraising efforts of presidents have a significant effect on compensation. Specifically, the results in model (2) indicate that for every \$100,000 increase in endowment per student, compensation increases by \$36,200, on average. When accounting for the other measures of prestige, however, endowment per student possesses a less significant effect on compensation. Comparing these results to other research, Chen and Huang observe that total endowment is negative and "marginally significant at the ten percent level" (Chen and Huang, 2009; 21). The results of this study therefore produce different results from Chen and Huang in finding that endowment per student is positive and significant, perhaps because their research uses total endowment level and does not consider the overlap between endowment and other measures of prestige.

In order to further identify correlation between prestige measures, model (3) removes SAT score, ROI rank, and endowment per student from the regression. In this regression, the

coefficient for Forbes rank is now significant at the 5% level and negative, as was originally expected of this variable. The coefficient for Forbes rank in model (3) suggests that on average, an advancement by 10 places in the Forbes rankings is correspondent with a salary increase of \$2,530. Similar to the endowment per student variable, Forbes rank shows different effects once the model controls for other measures of prestige. In fact, in model (1), Forbes rank possessed a positive coefficient and was significant at only the 10% level. Although the effect of Forbes rank is not as significant as SAT score and ROI rank, its effect when excluding other measures of prestige further supports the hypothesis that presidents are paid for their college's stature. Table 6 presents the correlation matrix between the variables for university quality, illustrating the high correlation between SAT score, ROI rank, Forbes rank, and endowment per student.

Overall, this study finds that the president's tenure and religious affiliation, the school's size, and the university's academic and financial performance positively affect compensation. Additionally, the regression model suggests that a university's type possesses influence over university president compensation, with private college presidents earning more than their public counterparts, on average. Finally, gender is not statistically significant in determining university president salary.

V. Conclusion

Ultimately, the results of this study propose similarities between certain determinants of CEO and university president compensation. For both groups of executives, firm- or university-level characteristics mattered. For companies, these factors were represented by firm industry, revenue, return on assets, and industry-relative stock performance; for colleges, these factors were represented by the type of school, student enrollment, and the university's academic and financial performance. In other words, the results suggest that both CEOs and college presidents

are in part compensated based on the sector of their organization, the magnitude of their company or school, and the success of their enterprise.

The results also propose that chief executives' personal characteristics influence their earnings. Compensation generally increases with a higher tenure, which represents the fact that a CEO or president who possesses more experience at a certain company or school receives more in compensation. For university presidents, ordained presidents typically earn less than those without a religious title. In both cases, gender was found to be insignificant in determining compensation. This similar finding for the gender coefficient is encouraging because it suggests that gender discrimination in relation to earnings is not highly persistent for chief executives in both the business and academic sectors. However, as an area of further study, it would be interesting to examine if a significant earnings disparity exists between female and male executives in positions below that of the CEO or university president.

Unfortunately, the availability of information and the time frame of this project limit the data that can be included in this study. For instance, academic research has prolifically discussed the role of the Board of Directors and corporate governance, internal versus external hiring, and CEO skills and background as determinants of CEO compensation. Databases and resources that this study had access to, however, did not provide data regarding these measures. Furthermore, there does not exist a database that provides similar information regarding the Board of Trustees for a college or university presidents' backgrounds. While many variables for the university president dataset were hand collected, it is difficult and unfortunately unreasonable to locate Board information for universities and certain personal information for presidents. In addition, other personal traits that are difficult to measure and therefore not included in this study may be influential in determining compensation. For example, perhaps a CEO possesses excellent

interview skills, communication ability, or people skills and is thus deemed a better CEO and worthy of higher compensation. As an area of further study, it would be interesting to collect and analyze factors missing from this study and attempt to find a wider set of determinants that link CEO and university president compensation.

While this paper is not without its limitations, the essence of the study lies in the comparison between the collected determinants of compensation for CEOs and university presidents, as well as the magnitude of these variables in relation to other variables. Separately assessing CEO and university president compensation provides insight on the importance and magnitude of certain earnings determinants for each group. In comparing these determinants, the fact that many of the same variables play a role in influencing compensation for both groups of executives proposes that these executives have similar responsibilities and are assessed according to similar criteria. As mentioned earlier, university presidents often have similar job descriptions as business leaders do, and many college presidents serve on corporate boards and find success in business ventures. In fact, a recently published article on Inside Higher Ed's website emphasizes the business skills required for a successful university president, stating that "with budgets changing along with fluctuating enrollments and funding, a president with a strong financial background who understands the day-to-day flow is advantageous"(Kiley, 2012).

In his own paper on the comparison between CEO and university president salary levels, Cornell (2004) highlights an insight that can also apply to this paper's compensation investigation. He argues that with the comparable job responsibilities of CEOs and university presidents, companies should be able to find hardworking, capable chief executives who are willing to accept a more reasonable pay level similar to that of university presidents. In addition to supporting Cornell's insights, the findings of this study also identify the crossover potential

for business leaders going into academics and vice versa, as the similarities between these executives propose that companies and universities may have a wider pool of applicants available when searching for a new chief executive. However, it is important to note that it has not been officially proven that a CEO should be valued in the same manner as a university president, and research findings can only suggest that similarities potentially exist between the compensation determinants of these two executive groups. The results of this study therefore highlight and suggest possible similarities between academic and business leaders in relation to aspects of their salaries and their job descriptions.

The findings of this paper possess another important contribution to the field of executive compensation in that the regression results can be applied to produce a suggested salary level for a CEO or university president. For example, exhibiting the relevance of university president salaries in the media, much protest and discussion arose in November 2012 over the compensation awarded to UC Berkeley's new chancellor, Nicholas B. Dirks. The announcement of Dirks' base salary of \$486,800, which represents a \$50,000 increase from his predecessor's salary, even drew criticism from the political realm. In light of cutbacks at public institutions and increased tuition for students, voters recently approved California Governor Jerry Brown's Proposition 30, which will allow University of California schools to avoid severe budget cuts through tax increases. The *Los Angeles Times* reports that Brown criticized Dirks' pay level, stating that the salary "does not fit within the spirit of servant leadership that I think will be required over the next few years"(Yoshino, 2012; 1). Brown adds that "the leaders have to demonstrate that they are also sacrificing"(Yoshino, 2012; 1). In response to the widespread attention and criticism, UC leaders have noted that Dirks' awarded salary is \$14,000 less than he currently receives as a high-level administrator at Columbia University. In addition, they assert

that his compensation is rather modest in comparison to other public and private university presidents.

In applying the results of this study to the case of the UC Berkeley president, the UC leaders are correct in their claim that Dirks will earn far less than presidents of other distinguished universities. In comparing Dirks' pay to the 2009 compensation of university presidents in this study, Dirks' salary falls in the 25th percentile of earnings. To apply the results of this study to Berkeley's case, the university president compensation model suggests that Dirks should actually receive approximately \$1.5 million. Although this amount is significantly higher than the compensation Berkeley awarded him, earning \$1.5 million would not even place Dirks' salary in the top ten salaries of this study. As the UC leaders asserted, Dirks is receiving less than his salary as an administrator at Columbia, where the president of the university earned \$1.8 million in 2009. The regression model suggests that Dirks is accepting compensation lower than his projected worth as Berkeley's president, which highlights Cornell's assertion that capable and skilled university presidents are often willing to work for more reasonable compensation levels, especially in comparison to the salaries of CEOs.

While the results of this study imply an even higher salary level for Dirks, it is understandable that Berkeley's announcement of his compensation has sparked criticism in light of recent cutbacks at public universities, rising tuition, and tax increases intended to alleviate these problems. In fact, the attention and debate surrounding Dirks' salary highlight the social and moral aspects of university president compensation: although the regression model suggests a high salary for Dirks, and other presidents receive even higher pay, is it ethical to award such high compensation to the president? Given this study's proposed compensation for Dirks, it will be interesting to observe if his salary rises in the future as he exhibits his skills as a leader and

works to maintain and enhance the quality of the university. If he performs well in his new position as president, the university may attempt to justify an increase in his compensation as a reward for managing such a large and prestigious college as Berkeley. In relation to the larger body of research and discussion concerning university president and CEO compensation, it will be fascinating to observe further research and articles on these two groups of executives as well as their hotly debated levels of compensation.

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Data Appendix

Table 1: CEO Variables

Variable	Description
Compensation	Consists of executive's salary, bonus, other annual compensation, total value of restricted stock granted, total value of stock options granted (using Black-Scholes), long-term incentive payouts, and all other total compensation. Measured in thousands of dollars. Retrieved from the Compustat ExecuComp database.
Female	1 if the CEO is female; 0 otherwise. Gender information was retrieved from the Compustat ExecuComp database.
Tenure	The number of years the executive has held the CEO position at the company. Retrieved from the Compustat ExecuComp database.
Revenues	The amount of revenue a company earned during its 2009 fiscal year. Measured in millions of dollars. Revenue information was retrieved from the Compustat Annual Updates database.
Return	A firm's stock return less the value-weighted stock performance of a firm's industry. Fama-French industry returns were used to find the value-weighted returns for each industry. Information on monthly holding returns to each company's stock was found on the CRSP database and converted into yearly stock returns for the year 2009. Return is measured in percentages.
ROA	A company's net income divided by the average of beginning and ending assets for fiscal year 2009. Net income and assets information was retrieved from the Compustat Annual Updates database. ROA is measured in percentages.
Industry variables	Each industry variable is a binary variable that returns a "1" if the company falls into that industry category and "0" otherwise. The first two digits of NAICS codes were used to classify industries. The NAICS code for each company was retrieved from the Compustat ExecuComp database. In total, there are 16 industry variables.

Table 2: CEO Summary Statistics

	Observations	Median	Mean	Min	Max	St. Dev
Compensation	468	\$7,061,560	\$8,525,047	\$32,171	\$42,975,500	\$5,993,227
Tenure	468	5 years	6.1 years	0 years	46 years	5.64 years
Revenues (millions)	468	\$7,104	\$16,697	\$569	\$406,103	\$31,950
ROA (%)	468	4.65%	5.33%	-37.87%	38.73%	7.24%
Return (%)	468	3.4%	9.4%	-115.6%	244.0%	43.9%

Table 3: CEO Summary Statistics (continued)

	Percentage of data
Female	2.8%
Agriculture	0.4%
Mining	5.3%
Utilities	7.3%
Construction	1.5%
Manufacturing	40.2%
Wholesale Trade	1.7%
Retail Trade	6.8%
Transportation and Warehousing	2.4%
Information	8.5%
Finance and Insurance	14.5%
Real Estate Rental and Leasing	3.6%
Professional, Scientific, and Technical Services	2.4%
Administrative and Support and Waste Management and Remediation Services	1.7%
Educational Services	0.6%
Health Care and Social Assistance	1.1%
Arts, Entertainment, and Recreation	0.2%
Accommodation and Food Services	1.7%

Table 4: University President Variables

Variable	Description
Compensation	Consists of the president's total salary for the academic year ending in 2009. Measured in thousands of dollars. Retrieved from the Chronicle of Higher Education's website.
Private	1 if the president's college is private; 0 otherwise. Information on institution type was retrieved from the Chronicle of Higher Education.
Female	1 if the university president is female; 0 otherwise. Gender information was hand collected from university websites.
Tenure	The number of years the executive has held the president position at the university. Tenure information was hand collected from university websites.
Religion	1 if the president holds a religious title such as "Reverend," "Father," or "Brother;" 0 otherwise.
Enrollment	The total student population at the university for Fall 2008. Information on enrollment was retrieved from the Integrated Postsecondary Education Data System (IPEDS).
Endowment per student	The endowment level of the university divided by the college's total enrollment. The university's endowment level represents the endowment as of the academic year ended June 30, 2009. Endowment information was retrieved from the Chronicle of Higher Education's website. For universities with missing endowments, information was found on the College Sustainability Report Card website or IPEDS.
ROI rank	The return on investment for a 2009 graduate of the university. ROI measures the investment gain, which is the projected salary for a 2009 graduate, against the cost of the investment, which is the total tuition for a 2009 college graduate. Colleges are then ranked according to their ROI, with a "1" designating the college with the best ROI. ROI ranking information was retrieved from PayScale's website.
SAT score	The college's 75th percentile SAT score for the critical reading and math sections of the exam. SAT score information was retrieved from IPEDS.
Forbes rank	The numerical ranking of the college, as listed in Forbes's annual "America's Best Colleges" list for 2009. A "1" designates Forbes's best college.

Table 5: University President Summary Statistics

	Observations	Median	Mean	Min	Max	St. Dev
Compensation	257	\$491,750	\$586,030.30	\$8,322	\$2,800,000	\$364,997
Private	257	--	61.50%	--	--	48.80%
Female	257	--	17.10%	--	--	37.70%
Tenure	257	6 years	6.9 years	0 years	30 years	5.2 years
ROI Rank	257	--	--	1	537	--
Enrollment	257	11,684	14,737	738	67,082	12,849
Endowment per student	257	\$257,151	\$892,242.80	\$6,053	\$26,000,000	\$2,397,252
Forbes Rank	257	--	--	2	598	--
SAT Score	257	1290	1308	950	1590	124
Religion	257	--	3.50%	--	--	18.40%

Table 6: Correlation Between Variables Measuring School Quality

	SAT score	ROI rank	Forbes rank	Endowment per student
SAT score	1.00			
ROI rank	-0.69	1.00		
Forbes rank	-0.64	0.49	1.00	
Endowment per student	0.63	-0.44	-0.55	1.00