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**Compensation and Recruiting:
Private Universities versus Private Corporations**

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Abstract

This paper attempts to shed light on the continuing debate regarding executive compensation by comparing the income of S&P 500 CEOs with that of the Presidents of elite private universities. The results reveal that university presidents are paid only a fraction of what CEOs are paid – less than 5% in 2000. Nonetheless, universities are able to attract leaders with qualifications and accomplishments equivalent to that of the most distinguished CEOs. Furthermore, university presidents appear to be willing to work as hard and as much in the interests of their constituents as corporate CEOs despite the lack of any meaningful incentive clauses in their contracts. These results suggest that the standard principal agent model used in evaluating compensation needs to be extended significantly before it can be applied to situations in a few select people are recruited for highly paid and visible jobs that offer the chance to lead major institutions.

1. Introduction

In his extensive review article, Murphy (1999) observes that by 1998 CEO compensation had become a political “hot button” and had attracted widespread scholarly interest. Little did he know that that interest was about to accelerate sharply. The huge compensation packages paid to executives prior to the collapse of companies such as Enron and Global Crossings has led to unprecedented attention being focused on executive compensation. Even the President of the United States has weighed in on the subject. The popular press routinely portrays CEOs as grossly overpaid. However, the scholarly literature demonstrates that reaching such a conclusion is fraught with complexities. Given the massive resources controlled by major corporations, bad or improperly incentivized leaders can cost firms billions of dollars. In addition, as Lazear and Rosen (1981) note, the pay packages of company leaders may serve functions beyond compensating and incentivizing the CEO. They can function as tournament prizes that provide incentives for employees throughout the organization who are in a position to compete for the prize, not just the executive who obtains it.

Despite the extensive research on CEO compensation, Murphy (1999) points out that some of the most basic questions have not been adequately addressed. In particular, there is little evidence to document that increases in financial incentives lead CEOs to work harder, smarter, and more in the interest of shareholders. More importantly, it remains unknown whether companies could find and recruit people who would work as hard, smart and effectively if they were to cut CEO compensation by a factor of two or more.

A fundamental empirical roadblock to answering these questions is developing an appropriate baseline for assessing the level of CEO compensation. One approach, popularized by Crystal (1991), is to compare CEO compensation with that of staff employees at the same company. By this standard, CEO compensation has risen dramatically. Murphy (1999) reports in 1970 the average S&P 500 CEO made about 30 times more than the average production worker. By 1996, that factor had increased to 90 times, *excluding* compensation received from exercising stock options. If option exercises are included, the factor rises to 210 times.

Another approach, taken by Abowd and Bognanno (1995), Cosh and Hughes (1997), Kaplan (1995), Zhou (2000), among others, is to use international data. Although the specific conclusions of the international studies depend on the sample period and the comparison countries, every study finds that U.S. CEOs are the most highly compensated, both in absolute terms and relative to staff employees.

While comparisons to staff workers and international CEOs shows that U.S. CEOs are very highly compensated, it does not demonstrate that they are “too” highly paid. It is possible that circumstances unique to the American economy and American companies lead to the higher level of compensation. For instance, size and total compensation are related in virtually every country and American companies tend to be larger in terms of market capitalization. In addition, Abowd and Bognanno (1995) stress that international comparisons can be affected by taxes, purchasing power parity and public benefits. Nonetheless, after adjusting for these factors they still find the U.S. CEOs are the most highly compensated. From a less positive perspective, it is also possible that American corporations are particularly susceptible to what Bertrand and Mullainathan (2000) call

“skimming”. The skimming hypothesis holds that the separation of ownership and control allows CEOs to gain effective control of the pay setting process. Both because of entrenchment, such as packing the board with supporters, and because of the complexity of the pay process, many CEOs are effectively able to set their own pay with little oversight from investors. Skimming may be more likely to occur at American companies because of the lack of large shareholders and reduced governmental oversight.

To provide a new source of empirical evidence, this paper compares data on the compensation of S&P 500 CEOs to the compensation of the presidents of America’s leading private research universities. America’s private research universities are among the most complex and most productive institutions in our society. They are responsible for training the nation’s gifted young people. The research they produce is fundamental to basic understanding across an enormous variety of disciplines. That research has also been a critical element in promoting the country’s economic growth. Many of the innovations that have led the revolutions in computing and biotechnology have their foundations in university research. Furthermore, major research universities typically operate extensive medical centers that provide state of the art medical care and well as producing innovative medical research. In addition, universities run hundreds of specialized centers dedicated to widely diverse intellectual goals, many of which are controversial. To fund these diverse activities, the budgets of major universities run into the billions of dollars. Endowments at the elite schools exceed ten billion dollars.

The scope of university activities is rivaled by the difficulty of managing them. Added to the normal problems that arise when managing any large, diverse enterprise, are a host of university specific issues. For instance, there are constant public, political

pressures. Not only are the political views of the basic constituents: faculty, students and alumni often divergent, but they typically are held with great conviction by highly intelligent, successful people who are used to getting their way. Furthermore, the large contingent of young people on campus tend to make universities centers for protest and political unrest. In addition, systems such as faculty tenure adds another layer of complexity to managing a university. The option of dealing with conflict by simply terminating recalcitrant employees, that is available in most private corporations, is not possible in a university context. The faculty cannot be fired and the students and alumni are “customers”.

Overall, there is little dispute that leading an elite private university is one of the most difficult jobs in America, comparable in complexity to managing a major corporation. It is not surprising, therefore, that the qualifications necessary to become president of a research university are unusually stringent. Presidents generally must be distinguished in both scholarship and administration. To satisfy the faculty, an advanced degree and a prominent record of publication is required. To satisfy the alumni, successful involvement in business or government is seen as a prerequisite. Finally, to do the job, highly developed people and administrative skills are necessary.

Once on the job, the hours and pressures are brutal. Past Stanford President, Gerhardt Casper, once said that a successful university president must have three qualities – stamina, stamina and stamina. During his presidency of Harvard, Neil Rudenstine became so exhausted that he had to be hospitalized. Rarely does a president of an elite private university serve for more than ten years. The job is simply too taxing. Nonetheless, the success of the university depends on the performance of the president.

The ability of the president to raise funds, attract faculty and keep the political peace, among dozens of other functions, determines the relative prosperity and development of competing schools. In short, elite private universities require people with talent, skill and a record of accomplishment comparable to that of the people chosen to run America's major corporations. This raises two basic empirical questions related to compensation. Are private universities able to attract leaders with qualifications comparable to that of major corporate leaders? If so, how do they compensate and recruit such people?

To answer these questions, the remainder of the paper is organized as follows. The next section briefly reviews the principal-agent model which serves as the theoretical basis on which much of the CEO compensation literature is based. The goal of that review is to highlight some issues that the principal-agent model fails to address that make data on the compensation of university presidents particularly interesting. Section three presents an empirical analysis of the compensation of private university presidents in comparison to corporate CEOs. The final section discusses the implications of the results and presents the conclusions.

2. The principal-agent model of executive compensation

The theoretical starting point for most of the research on executive compensation is the principal-agent model. The standard model, as developed originally by Mirrlees (1974, 1976), Holmstrom (1976) and Grossman and Hart (1983), takes the following form in the context of CEO compensation. The CEO can take unobservable actions, a , which produce stochastic shareholder value, $x(a)$, and for which she receives compensation $w(x,z)$ and utility $u(w,a)$. In this framework, z is a vector of observable measures in the contract

and utility depends only on compensation (positively) and “effort”, as represented by a , (negatively). As Holmstrom (1979) shows, x is an important element of the compensation function because realizations of x are the best proxy for determining what unobservable actions the CEO took.

From the standpoint of assessing CEO compensation, the principal-agent model has three significant deficiencies – two of which has been stressed in the literature the other which has not. First, as Murphy (1999) emphasizes, unobservable actions cannot be the sole driving force underlying CEO contracts because even if shareholders (or boards) could directly monitor CEO actions they could not determine whether those actions were appropriate under the given circumstances. Second, as Holmstrom (1992) points out, CEOs can choose from a wide range of actions that cannot be summarized by the effort variable, a . Put another way, the problem in executive compensation is not necessarily to get CEOs to work harder, but getting them to take the correct actions necessary to maximize shareholder wealth. It is not clear how higher pay necessarily produces that result. Finally, the principal-agent framework basically envisions identical agents being available to do piecemeal work, like harvesting crops, for which there is little non-pecuniary compensation. In the case of CEOs, boards are able to select from a large number of candidates. This makes it possible to search for candidates with specific personality characteristics that are beneficial to shareholders. Once such characteristic may be a sense of pride and dedication to perform that, above a certain pay level, is largely independent of compensation. Furthermore, being a CEO provides non-pecuniary benefits some individuals may value highly. Among these non-pecuniary benefits, psychologists and organizational theorists have identified gaining the respect and admiration of others,

having the ability to control one's environment, having power over other people and being able to make what is viewed as a lasting contribution.¹ In fact, corporate boards may want to recruit individuals precisely because they value these non-pecuniary benefits both because such individuals may require less compensation and, as argued below, because having such individuals in positions of leadership may decrease social frictions within the organization.

In support of the organization theory view that highly visible jobs which offer power and a chance to lead provide non-pecuniary benefits, there are numerous instances of wealthy individuals spending large sums of their personal wealth in attempts win election to public office. For instance, the Wall Street Journal reported that Jon Corzine, the former head of Goldman Sachs, spent approximately \$65 million of his personal fortune in seeking election to the U.S. Senate.² This is hardly a unique example. Steve Forbes, Ross Perot, William Simon Jr. and Laurence Rockefeller, among many others, all spent millions of dollars seeking low paying public offices.

As mentioned above, the principal-agent model also fails to take account of the "public good" aspect of CEO compensation. One strand of organization theory, including the work of Finkelstein (1996), O'Reilly, Wade and Pollock (1998) and Hambrick and Siegel (1998) stresses the political problems that arise in organizations when pay differentials become too large. The argument presented in these papers is that extreme inequality leads to decreased morale, higher turnover and lower productivity. It should be noted in this regard that executive recruitment that focuses on compensation is likely to

¹ See, for example, O'Reilly and Pfeffer (2000)

² *Wall Street Journal*, February 25, 2002, p. c16.

exacerbate the situation. To the extent that compensation is the key to recruitment, it emphasizes pay as a measure of worth. It is also likely to attract individuals who place relatively more weight on monetary compensation compared to the non-pecuniary benefits of the job. Putting such individuals in position of leadership could serve to worsen the morale problems stressed by organization theorists. Of course, such a focus may be unavoidable if huge compensation packages are required to attract and to motivate individuals with the talents and the skills necessary to run major corporations.

3. Compensation data: Corporate CEOs versus university presidents

Data on the compensation of CEOs was graciously provided by Kevin Murphy. The data set consists of the total compensation of executives of S&P 500 Industrial and Financial companies. The total compensation includes salaries, bonuses, grants of restricted stock, payouts from long-term pay programs, and amounts realized from exercising options during the year. Amounts received from exercising options are used in place of the value of the options granted in a given year because the valuation data on options granted are not available. The inclusion of receipts from exercising options probably adds an upward bias to the total compensation figures because returns on common stocks exceeded expected returns during the sample period from 1994 to 2000.

Data on the compensation of private university presidents was collected from the *Chronicle of Higher Education*. Unfortunately, those data are only available from 1994 to 2000, resulting in a relatively short sample period. As it turns out, however, the results are so striking that confidence can be placed in the conclusions despite the short sample period. The *Chronicle* collects the underlying from federal tax Form 990 that all private

universities must file with the IRS. (Public institutions are not required to file the form.) Federal law also requires the universities to make Form 990 data available to the public upon written request. The form shows the total compensation of the institution's president broken down into salary and bonus or special compensation, such as moving expenses. It does not include compensation that university presidents receive for service as outside consultants or members of corporate boards. In this respect, the data are comparable to Murphy's data on corporate compensation which includes only monies received from the employer.

The group of universities selected for the study is not meant to be a random sample of the universe of private universities. Only the most prestigious schools were selected from the data made available by the Chronicle. This is done to provide the fairest benchmark against which to compare the compensation of S&P 500 CEOs. The list of universities included in the sample is presented in Table 1. The table also shows the university's current president and his or her compensation for the academic year 2000. Boston University, which may be considered somewhat of an outlier, is included to make the sample more conservative. John Silber, the Chancellor of Boston University, has consistently been one of the highest paid university presidents. Adding Boston University to the sample increases the average compensation in every year.

For the comparison of the compensation of corporate CEOs and university presidents to be meaningful, the two sets of leaders must be of comparable quality. While quality is difficult to define, particularly when dealing with small, highly selective groups of people, Table 2 is designed to show that America's leading universities have been able to attract an extraordinarily able group of leaders. The table presents brief descriptions of

the backgrounds of the presidents of five of the universities in the sample. Given the need to satisfy an academic clientele, it is not unexpected that all of the presidents are accomplished scholars who have won a host of academic honors, including the Nobel Prize. More surprising is the extent of their government and corporate service. Virtually all of the presidents in Table 1 (not just those in Table 2) have records of distinguished public service. Many worked intimately with, or started, private corporations. The list even includes a previous Secretary of the Treasury. Overall, it is hard to argue that the record of accomplishment of these individuals is not equal to that of CEOs of S&P 500 companies. While the five individuals whose backgrounds are described in Table 1 are certainly among the most accomplished university presidents, their records are not unrepresentative. All of the university presidents listed in Table 1 have remarkable histories of achievement.

The basic compensation data for the university presidents are presented in Figure 1. The table shows total compensation and its breakdown into salary and benefits. It should be noted that in some cases the “benefits” include items such as one-time moving expenses that are not often categorized as benefits in the corporate data. Even when all the benefits are included, the total compensation of elite university presidents is remarkably low. Average total compensation for the 17 university presidents rises from \$319,000 in 1994 to \$505,000 in 2000. These numbers are so much smaller than the total compensation of S&P 500 executives that it is difficult to compare them on the same chart. Nonetheless, this exercise is undertaken in Figures 2.

Figure 2 compares Murphy’s data on the total compensation of executives of S&P 500 Financial and Industrial companies with the total compensation of university

presidents. The juxtaposition is so striking that it almost appears to be a typographical error. In 2000, for example, S&P 500 Financial company executives received total compensation of approximately \$18 million on average, about 36 times the average of the university presidents. S&P 500 Industrial executives received slightly less, approximately \$16 million on average, or 32 times the average of the university presidents.

Figure 3 shows that despite the huge difference in scale, the compensation of executives actually grew faster than that of university presidents during the sample period. In 1994 the ratio of the total compensation of university presidents to all S&P 500 executives was 15. By 2000, it had more than doubled to 33. The jump in the ratio is due to the dramatic growth in executive compensation beginning in 1995. From 1994 to 1995, executive compensation actually fell while university president compensation rose. After that, however, executive compensation grew at an average rate of approximately 30 percent per year, while the increase in university president compensation averaged only about 5 percent.

It should be noted that part of the increase in executive compensation is no doubt due to unexpected increases in stock prices. Because Murphy's data includes the value of options when exercised, rather than when granted, it will reflect unplanned windfalls during periods when stock prices rise unexpectedly. That is certainly true of the 1994 to 2000 sample period used here. However, as Bertrand and Mullainathan (2001) explain, diligent boards have been able to design option based compensation packages that do not reward executives for unexpected increases in the general level of stock prices. Many boards have simply chosen not to do so.

4. Implications of the results and conclusions

The results presented in the previous section show a dramatic difference between the compensation of S&P 500 CEOs and the compensation of the presidents of America's leading private universities. The difference is so large, a factor of more than 33 in the year 2000, that it swamps concerns that might arise about how compensation is measured or how the sample is chosen. The pay of university presidents and corporate CEOs is not even in the same ballpark. It may be argued that universities do not pay as much as corporations because they cannot. It is possible that constraints such as the non-profit nature of the organization or the power of certain stakeholders, such as the faculty, sharply limits the compensation that a university president can receive. But that is not the issue. The point here is that despite these constraints, or whatever other factors limit the compensation that universities can offer their presidents, the universities have been able to attract remarkably accomplished people who have performed their duties with great energy and diligence.

A detailed study of how universities are able to attract people of apparently equal quality to CEOs while paying less than 5% of the compensation that CEOs receive is beyond the scope of this paper. Nonetheless, conversations with university recruiters reveal that they stress many of the factors emphasized by organizational theorists. Universities specifically search for people who value the non-pecuniary aspects of the job such as the chance to make a social contribution and the opportunity to lead a great institution. They also search for people who are motivated to achieve by other factors in addition to monetary compensation. Furthermore, the compensation contract is not designed to "incentivize" the president. Even though the compensation is largely fixed,

independent of both effort and results, the universities expect their presidents will put forth a “best effort”. The notion is that there are people in the applicant pool with a sense of personal pride and character that motivates them to work hard, and in the interests of their constituents, even with a fixed salary contract. If that applicant pool is large enough, the universities assume that such people can be found. The success they have had in recruiting presidents indicates that this assumption is well founded.

The question remains as to what extent the university experience can be carried over to corporations. Universities may be particularly well suited to attracting individuals who value the non-pecuniary aspects of their product, namely research and education. Furthermore, universities draw their presidents from people in academic life. Such people presumably made the decision at some earlier time to pursue a career with lower pecuniary compensation in return for the non-pecuniary benefits. People who enter commerce, on the other hand, presumably value pecuniary compensation more highly on average. Nonetheless, major corporations have huge pools from which they can select their leaders. Even if searches were limited to internal candidates, S&P 500 companies employ approximately 50,000 people on average. Presumably that pool is sufficiently large that highly trained, skilled and motivated leaders could be located even if the current level of compensation were cut in half, particularly if the search placed added emphasis on finding people who valued the non-pecuniary benefits of the job.

Overall, the data presented here add support to the skimming theory of Bertrand and Mullainathan (2001). The differential between CEO compensation and university president compensation is so large that it is hard to imagine that a gap that large is required for companies to attract qualified leaders. It appears instead that CEOs, perhaps with the

consent of boards that are often dominated by other CEOs, are playing an important role in setting his or her own compensation. The ability of universities to attract accomplished leaders while paying only a small fraction of what corporations do suggests that boards could do more to maximize shareholder wealth.

The university data also cast light on the continuing debate of whether aligning executive compensation with shareholder returns actually causes executives to work harder, more intelligently, or more in the interests of shareholders. The empirical literature on this issue, including Leonard (1990), Abowd (1990) and Kahn and Sherer (1990) is mixed. Furthermore, the literature is difficult to interpret. If stock returns are the measure of performance, as in Leonard and Abowd, then correlations between prior executive compensation and subsequent stock returns tend to be low because so many other factors influence stock returns. If direct evaluations are used to measure management performance, as in Kahn and Sherer, then the problem of evaluating the evaluations arises. The university data suggest that the focus placed on incentive alignment by the agency theory model may be exaggerated. Leaders of major institutions are a highly select group of people who, even in the case of the lower paid university presidents, are highly compensated compared to members of society at large. Given a declining marginal utility of wealth, such individuals are likely to weight the non-pecuniary aspects of their job more highly than the average citizen. Unfortunately, to this point there is little research on how CEO decision making and work habits are influenced by variation in compensation. This should be a fertile area for future work because the behavior of university presidents suggests that marginal compensation is a relatively unimportant determinant of their behavior on the job. In fact, previous Stanford President Gerhardt Casper said he never

worked harder than during his years as Stanford's President. At his retirement, furthermore, the University lauded the remarkable energy and enthusiasm he brought to the job. All of this occurred despite the lack of incentive clauses in his contract.

In summary, the results reported in this paper point to two basic conclusions. First, elite private universities are able to attract presidents with capabilities, skills and experience equal to that of top corporate CEOs despite the fact that they currently offer less than 5% of the average CEO's compensation. This adds to the growing literature which suggests that Boards are not doing all they can to maximize shareholder wealth when recruiting and compensating CEOs. Second, the agency theory model commonly applied in compensation analysis has some significant shortcoming when applied to the most senior positions. When recruiters have the ability to search a large pool of potential applicants for a position of visibility, power and leadership that, even in the worst case, will be highly compensated, factors come into play that the agency theory model ignores. Among these factors are the non-pecuniary benefits of job and the personal characteristics of the competing candidates. The success of universities in recruiting presidents who typically have served with great energy, distinction and dedication, even without "incentivizing" contracts, demonstrates that these other factors are important.

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Table 1
The Sample of Universities

	University	Chief Executive in 2000	Total Compensation for 2000
1	Boston University	John R. Silber, chancellor	815,252
2	Brown	E. Gordon Gee, former president	289,381
3	Caltech	David Baltimore, president	437,946
4	Carnegie Mellon	Jared L. Cohon, president	374,444
5	Columbia	George Rupp, president	562,610
6	Cornell	Hunter R. Rawlings III, president	438,012
7	Duke	Nannerl O. Keohane, president	425,618
8	Harvard	Neil L. Rudenstine, president *	380,272
9	Johns Hopkins	William R. Brody, president	623,240
10	MIT	Charles M. Vest, president	483,610
11	NYU	L. Jay Oliva, president	650,746
12	Northwestern	Henry S. Bienen, president	435,520
13	Princeton	Harold T. Shapiro, president	494,186
14	Stanford	Gerhard Casper, president	484,656
15	University of Chicago	Hugo F. Sonnenschein, president	425,028
16	University of Pennsylvania	Judith Rodin, president	698,325
17	Yale	Richard C. Levin, president	561,709
		Average	504,739

Table 2

Qualifications of Leading University Presidents

Lawrence Summers, Harvard University

Dr. Summers received a bachelor of science degree from the Massachusetts Institute of Technology in 1975. He then taught at MIT and served on President's Council of Economic Advisers before returning to the Harvard faculty in 1983. In 1987, Mr. Summers became the first social scientist ever to receive the annual Alan T. Waterman Award of the National Science Foundation (NSF). In 1993, Mr. Summers was awarded the John Bates Clark Medal, given every two years to the outstanding American economist under the age of 40. Mr. Summers then left Harvard for a series of positions in Washington: first as vice president of development economics and chief economist of the World Bank; second, as the undersecretary of and then deputy secretary of the Treasury; and finally as Secretary of the Treasury. After leaving the treasury department in January 2001, Mr. Summers served as the Arthur Okun Distinguished Fellow in Economics, Globalization, and Governance at the Brookings Institution in Washington. Mr. Summers's many publications include *Understanding Unemployment* (1990) and *Reform in Eastern Europe* (1991, coauthored with others), as well as more than 100 articles in professional economics journals. He took office as President of Harvard University on July 1, 2001.

Judith Rodin, University of Pennsylvania

Dr. Rodin graduated from the University of Pennsylvania with a B.A. in psychology. She earned her Ph.D. from Columbia University in 1970. She moved to Yale in 1972, was

promoted to associate professor in 1975, named a full professor of psychology in 1979, and added the title of professor of medicine and psychiatry in 1985. Prior to her appointment as Yale's provost in 1992, she served two years as chair of the department of psychology and one year as dean of the Graduate School of Arts and Sciences. Renowned for her work on the relationship between psychological and biological processes in human health and behavior, Rodin has published more than 200 articles and chapters in academic publications and authored or co-authored ten books. In addition to her academic duties, Dr. Rodin serves on the boards of Aetna Life & Casualty Company, Air Products and Chemicals, Inc., the Brookings Institution, Catalyst, and the Greater Philadelphia First Corporation. She has been elected to American Academy of Arts and Sciences, the American Philosophical Society, and the Institute of Medicine of the National Academy of Sciences. For 10 years, she chaired an international research network studying health and behavior for the John D. and Catherine T. MacArthur Foundation. She became President of the University of Pennsylvania in 1993.

John L. Hennessy, Stanford University

Dr. Hennessy earned his bachelor's degree in electrical engineering from Villanova University and his master's and doctoral degrees in computer science from the State University of New York at Stony Brook. He joined Stanford in 1977 as assistant professor of electrical engineering, becoming associate professor in 1983 and full professor of electrical engineering and computer science in 1986. He was named the Willard and Inez Kerr Bell Endowed Professor of Electrical Engineering and Computer Science in 1987. A pioneer in computer architecture, he drew together researchers in 1981 to focus on a

computer architecture known as RISC (Reduced Instruction Set Computer), a technology that has revolutionized the computer industry by increasing performance while reducing costs. In addition to his role in the basic research, Dr. Hennessy helped transfer this technology to industry. In 1984, he cofounded MIPS Computer Systems, now MIPS Technologies, which produces microprocessors. Dr. Hennessy is a co-recipient of the John von Neumann Medal, awarded by the Institute of Electrical and Electronics Engineers, and winner of the Benjamin Garver Lamme Award from the American Society for Engineering Education. He is a member of the National Academy of Engineering and a fellow of the American Academy of Arts and Sciences, the Association for Computing Machinery, and the Institute of Electrical and Electronics Engineers. He became President of Stanford University in September 2000.

David Baltimore, Caltech

Dr. Baltimore received his bachelor's degree from Swarthmore College in 1960 and his PhD from Rockefeller University in 1964. He subsequently held yearlong postdoctoral positions at MIT and the Albert Einstein College of Medicine, followed by a three-year appointment at the Salk Institute in La Jolla, California. In 1968, he returned to MIT as an associate professor. He was named full professor in 1972. In 1975, Dr. Baltimore shared the Nobel Prize in physiology or medicine for work on reverse transcriptase which has greatly expanded scientists' understanding of retroviruses like HIV. In addition to his research accomplishments, Baltimore has several administrative and public policy achievements to his credit. In the mid-1970s, he played an important role in creating a consensus on national science policy regarding recombinant DNA research. He served as founding

director of the Whitehead Institute for Biomedical Research at MIT from 1982 until 1990. An early advocate of federal AIDS research, Baltimore was appointed in 1996 to head the National Institutes of Health AIDS Vaccine Research Committee. Dr. Baltimore has published more than 500 peer-reviewed articles and is considered to be one of the most influential biologists of his generation. He became President of Caltech in 1998.

Dr. Shirley M. Tilghman, Princeton University

Dr. Tilghman, a native of Canada, received her Honors B.Sc. in chemistry from Queen's University in Kingston, Ontario, in 1968. After two years of secondary school teaching in Sierra Leone, West Africa, she obtained her PhD in biochemistry from Temple University in Philadelphia. During postdoctoral studies at the National Institutes of Health, she made a number of groundbreaking discoveries while participating in cloning the first mammalian gene, and then continued to make scientific breakthroughs as an independent investigator at the Institute for Cancer Research in Philadelphia and an adjunct associate professor of human genetics and biochemistry and biophysics at the University of Pennsylvania. In 1998, she took on additional responsibilities as the founding director of Princeton's multi-disciplinary Lewis-Sigler Institute for Integrative Genomics. A member of the National Research Council's committee that set the blueprint for the U.S. effort in the Human Genome Project, Tilghman also was one of the founding members of the National Advisory Council of the Human Genome Project Initiative for the National Institutes of Health. Dr. Tilghman became President of Princeton in 1995.

Figure 1
Total Compensation of Private University Presidents: 1994 - 2000

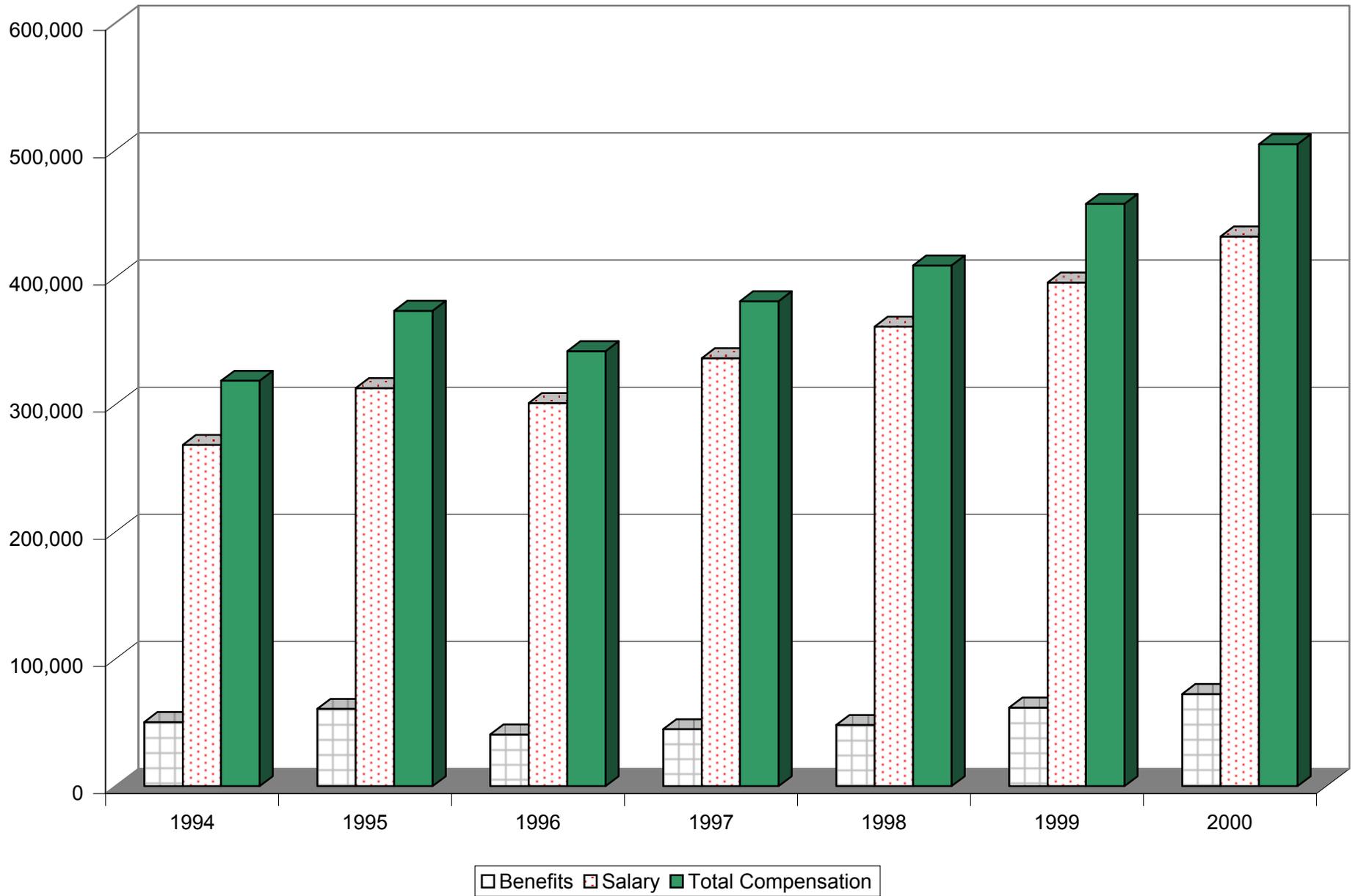
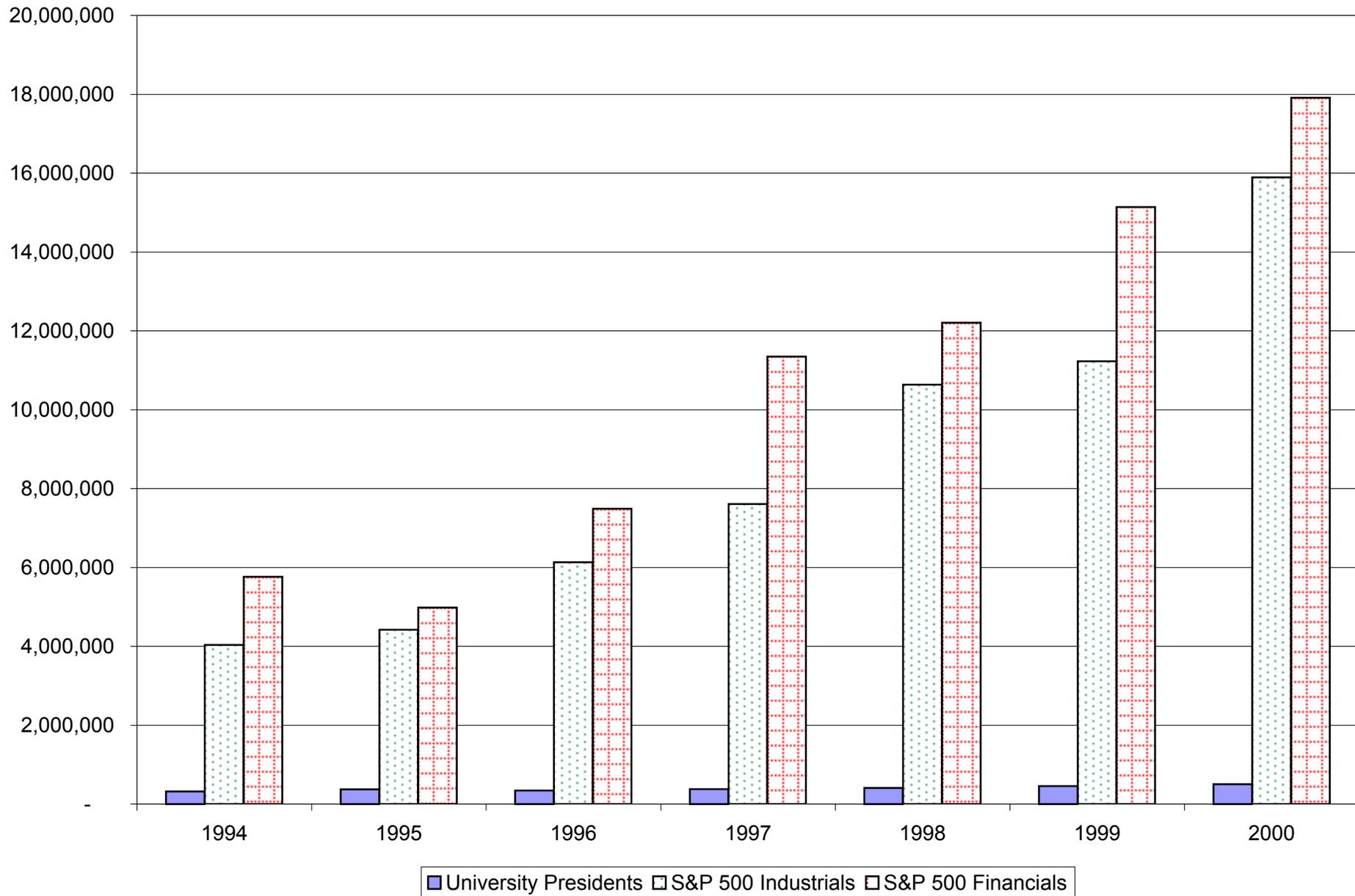


Figure 2
Total Compensation of S&P 500 CEOs Compared to University Presidents



**Figure 3:
Total Compensation Growth Rates and Ratio: 1994-2000**

