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“Compensation of CEOs – New Perspectives and New Metrics”

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Abstract

This paper reports CEO compensation data from the SEC as of December 31, 2022, for all S&P 500 firms, regrouped into 10 industries based on the Bloomberg classification. It presents the breakdown of the corresponding CEO's compensation, showing the proportion of incentive components in total amounts, as well as the variety of approaches used to establish compensation.

The relative compensation of CEOs is at the heart of discussions on inequality, and whether a given CEO is worth the pay she/he is getting remains an open question. The CEO pay ratio, measured as the CEO's total compensation relative to the median comprehensive pay of a firm's employees, is the most frequently quoted number in the popular press. For S&P 500 firms, the largest US companies by capitalization, this ratio reached an average value of 292 in 2022.

While many observers focus on the CEO pay ratio, other measures may be more informative and relevant for stakeholders, including employees and shareholders. To show how much employees implicitly “contribute” to their CEO's total pay, we propose alternative ratios, such as the CEO pay per employee and the B-ratio, which measures CEO encompassing pay as a percentage of total payroll, thereby giving the employees' contribution as a percentage of their respective pay.

To assess whether such employees' contributions are worthwhile, one must determine the value of the CEO for the organization, its workers, and stakeholders. Such value rests on the CEOs' role and the practical impact of their leadership in ensuring the company's success, sustainability, and job security. The way questions are framed influences perceptions by the firm's stakeholders, highlighting the need for proper analysis using appropriate metrics.

1 Introduction

In September 2017, the U.S. Securities and Exchange Commission (SEC) approved interpretive guidance to implement the pay ratio disclosure requirement mandated by the Dodd-Frank Wall Street Reform and Consumer Protection Act, signed by President Barack Obama in July 2010. Under the SEC rule, companies are required to disclose their CEO pay ratio starting in early 2018. This pay ratio disclosure rule requires companies to disclose their CEO's compensation and their median employee compensation.

The CEO's compensation or total pay includes the salary paid, the bonuses awarded, the estimated fair market value of stock awards, the estimated fair market value of option awards, the non-equity incentive plan awards, the change in pension value and deferred compensation earnings, and all other forms of compensation, as reported below in Appendix B. The SEC published detailed rules for calculating CEOs' total pay, based on the Financial Accounting Standards Board (FASB) instructions. If relevant, such rules also apply to the determination of the firm's median employee pay. Hence, in the discussion below, any reference to pay, total pay, or total compensation must be understood to refer to the SEC encompassing compensation total value, both for the CEO and for the median employee.¹

The SEC leaves some limited leeway to the firms in determining the median salary, which can cover all employees or only U.S.-based ones if the latter represent more than 95% of employees. The SEC rule allows firms to use reasonable estimates, assumptions, and methodologies, clarifies that a company may use appropriate existing internal records, such as tax or payroll records, in identifying the median employee, and provides guidance as to when a company may use widely recognized tests to determine whether its workers are employees for purposes of the rule. Under the rule, employees of consolidated subsidiaries must be included, and those of independent suppliers must be excluded. Despite all the complexities and intricacies firms must deal with, the information is quite informative and interesting.

The CEO pay ratio, defined as the CEO's total pay relative to the firm's median employee's total pay, averaged 292 in 2022 for S&P 500 firms. Although media coverage mainly focuses on this ratio, it may not be the most informative or relevant measure of the discrepancy between the CEO's pay and the median pay in the firm. Other ratios such as the CEO pay per employee as well as the B-ratio proposed here (defined as the firm's CEO pay over the firm's estimated total payroll, measured by the number of employees times the median salary) are clearly more informative and relevant, as reported below in Appendix A. Being based on the median compensation rather than the average compensation of employees, the B-ratio is a prudent (over)estimate of the CEO pay as a percentage of the total payroll.

¹ See 17 CFR Part 229 Subpart 229.400, item 229.402, September 29, 2025; FASB Update No. 2021-07, October 2021.

2 New Perspectives and New Metrics

From the annual 10-K reports submitted to the SEC by the largest corporations (S&P 500 firms) as of December 31, 2022, we collected, for each firm, the median employee total pay, the CEO total pay and its components, and the total number of employees. From these inputs, we computed the associated compensation metrics: the CEO pay ratio, the CEO pay per employee ratio, and the B-ratio. The S&P 500 firms account for about 80 percent of the American equity market by market capitalization. Compensation data and computed metrics for all companies listed on the S&P 500 are presented in Appendix A.

Firms with CEO pay above \$100 million (7 firms) or below \$1 million (3 firms) are considered outliers and not representative of S&P 500 firms. Those are the following (level and growth of CEO pay in 2022): Warner Bros. Discovery (\$246.6 millions, +554%), Amazon (\$212.7 millions, 12,546%), Expedia (\$296.2 millions, 6,952%), ServiceNow (\$165.8 millions, 560%), Activision Blizzard (\$154.6 millions, 413%), Oracle (\$138.2 millions, 1,200%), Intel (\$178.6 millions, 698%), Berkshire Hathaway (\$373,653, 1.8%), Tesla (\$0, 0%), Take-Two Interactive Software (\$142,996, 3.4%). Those firms are excluded from the computation of totals and averages per industry and the total (490 firms).

Table 1 below shows the bottom line. The CEOs of those 490 large companies earned an average of \$16.3 million and a median \$14.5 million as of December 31, 2022. As mentioned above, the average CEO pay ratio over all firms is 292. However, firms greatly differ in size, and more representative CEO pay ratios are the median CEO pay ratio of 190 and the weighted average CEO pay ratio of 194, measured as the total compensation paid to all 490 CEOs (\$8,004,827,970) divided by the total of all median salaries over all 490 firms (\$41,336,471). The CEO pay represents a weighted average of \$310 per employee (average CEO pay across all firms / average number of employees across all firms). It gives a weighted-average B-ratio of 0.50% (average CEO pay across all firms / average total payroll across all firms).

Table 1. Compensation Metrics for S&P 500 CEOs

	B	C	D	E	F	G	H
	Median employee salary (\$)	CEO total pay (\$)	Number of employees	Total payroll B*D (estimated) (\$)	CEO pay ratio C/B	CEO pay per employee C/D (\$)	B-Ratio: CEO pay over total payroll C/E (%)
GRAND TOTAL (490 firms)	41,336,471	8,004,827,970	25,790,147	1,589,863,343,097			
Average over 490 firms	84,360	16,336,384	52,633	3,244,619,068	292	2,111	2.58
Median over 490 firms	72,118	14,493,390	19,544	1,450,969,452	190	668	0.97
Weighted average value					194	310	0.50

Source: Last available values filed with the SEC before December 31, 2022. <https://www.sec.gov/search-filings>

Hence, each of the 26 million employees in those 490 firms “contributes” on average \$310 to their CEO's total annual compensation, or about one half of one percent of their respective salary. Seen differently, if we were to divide the CEO's total pay equally among all employees, the resulting annual pay increase for each employee would be \$310. If we do it proportionally to the employee's salary, the resulting employee pay increase would be 0.5%.

Suppose we ask employees the following two questions:

Question #1: Would you be ready to contribute one half of one percent of your annual salary (\$250 for a salary of \$50,000; \$500 for a salary of \$100,000) to hire the best CEO we can find to manage your firm and in particular to ensure and enhance its profitability, sustainability, and growth, and, in so doing, to protect your job, now and in the future, including your pension?

Question #2: Would you find it appropriate to pay your CEO some 292 times the median salary in your firm to manage your firm and, in particular, to ensure and enhance its profitability, sustainability, and growth, and, in so doing, to protect your job, now and in the future, including your pension?

We expect that many more employees would say yes (a large majority would!) to question #1 than to question #2. This is a revealing example of the need to inform the question appropriately.

Only the former question, the “one half of one percent question”, makes sense information-wise as well as economically and socially. People can easily understand a question directly tied to their own salary or compensation. A question framed as a 292 multiple of a median salary is much more difficult to understand, as its economic meaning is somewhat obscure, even to economists and accountants.

2.1 The variability among firms and industries

As expected, those measures, namely the CEO pay ratio, the CEO pay per employee, and the B-ratio, vary across firms and industries. There are several reasons for this variability, including the degree to which the CEO's leadership and competencies are critical and specific to the design, implementation, and management of the firm's strategies and actions. In general, the CEO-led exercise of the firm's underlying real options has significant impacts on the firm's performance, profitability, and growth and, in so doing, on the overall well-being of employees, shareholders, and other stakeholders, including suppliers and clients. But this CEO role and importance may differ across firms and industries as well as across countries. Understanding how and why is therefore essential. We tackle these questions later in The value of management (CEO) section.

Expressed per industry (Bloomberg classification), we observe the following: the sector-average CEO total pay level ranges from \$13.8 million (Industrials) to \$24.9 million (Communications).

Table 2. Data by industry groups

Industry	(A) Total firms	(B) Total employees	(C) CEO Pay average (\$)	(D) Median pay average (\$)	(E) CEO pay ratio	(F) CEO pay per employee (\$)	(G) B-ratio (%)
Communications	19	1,410,815	24,928,182	109,206	228	336	0.29
Consumer Discretionary	53	4,174,527	17,316,552	41,451	418	220	0.79
Consumer Staples	36	5,342,303	14,062,098	49,859	282	95	0.30
Energy	23	390,690	16,420,522	144,206	114	967	0.78
Financials	92	2,603,070	15,239,185	94,292	162	539	0.65
Health Care	63	3,282,299	15,603,501	85,281	183	299	0.42
Industrials	69	4,028,902	13,826,835	68,398	202	237	0.34
Materials	28	741,851	14,250,283	74,595	191	538	0.80
Technology	78	3,465,678	19,998,790	94,801	211	450	0.58
Utilities	29	350,012	14,879,898	127,684	117	1233	0.92
Total	490	25,790,147	16,336,384	84,360	194	310	0.50

CEO pay includes all forms of compensation, some of which are clearly incentive-based and therefore uncertain insofar as objectives may not be met. Forms of compensation, such as stock awards, option awards, and bonuses, are related to different measures of the firm's performance and are therefore risky and uncertain. The same is true for employees, if applicable.

When firms are regrouped by industry sector, the sector-average number of employees ranges from 12,069 (Utilities) to 148,397 (Consumer Staples), the latter driven by Walmart. Without Walmart and its 1,608,000 employees, the consumer staples sector's average number of employees would decrease to 86,923, though it would remain the largest among all industry sectors.

Given variations in median salaries and the number of employees, one expects the estimated total payroll to vary widely across firms. Indeed, the total payroll, evaluated with the median salary rather than the average salary, ranges from \$4.3 million (VICI Properties Inc) and \$33.0 million (Host Hotels & Resorts Inc.) to \$46.3 billion (Alphabet Inc.), \$52.8 billion (Amazon.com Inc.) and \$58.3 billion (Walmart Inc.), with an average of \$3.2 billion and a median of \$1.5 billion. When industry sectors regroup firms, the sector-average total payroll ranges from \$1.6 billion (Utilities) to \$7.5 billion (Communications).

The relative similarity of CEO salaries across industries (Table 2) and the important variation in the number of employees mean that the ratio of CEO pay per employee will vary significantly across firms. In fact, it goes from less than \$50 (The Home Depot Inc., The Kroger Co., Walmart Inc., Costco Wholesale Corp., Target Corp., Berkshire Hathaway Inc., DaVita Inc., Accenture Plc) to over \$40,000 (Cabot Oil & Gas, Realty Income Corp.), with an average of \$2,111, a median of \$668, and a weighted average of \$310 with the ten outliers listed above excluded.

Finally, the CEO pay as a percentage of total payroll, which measures the “contribution” of individual employees to the salary of their CEO as a percentage of their respective salaries (the B-ratio), varies from less than 0.10%, that is, one tenth of one percent (Alphabet, Take-Two Interactive Software Inc., Tesla Inc., The Home Depot Inc., Walmart Inc., Costco Wholesale Corp., Berkshire Hathaway Inc., DaVita Inc., UnitedHealth Group Inc., American Airlines Group Inc., Activision Blizzard Inc., International Business Machines Corp., Accenture Plc), to 35% (Host Hotels & Resorts Inc.) and 179% (VICI Properties Inc), with an average contribution of 2.58%, a median contribution of 0.97%, and a weighted average (total CEO pay over all firms divided by total payroll over all firms, evaluated at the median salary) of 0.50% or one half of one percent when the ten outliers listed above are excluded.

2.2 The data for some specific individual firms

It may be informative to consider the cases of some specific firms. Table 3 provides data for some firms, one per industry (in the same order as in Table 2). The selected firms need not be representative of their industry.

Table 3. Data for some firms, one per industry group

Firm	Nb of employees	CEO Pay (M\$)	Median pay (\$)	CEO pay ratio	CEO pay / employee (\$)	B-ratio (%)
Comcast Corp.	189,000	34.0	83,840	405	180	0.21
Ford Motor Co.	183,000	22.8	64,003	356	125	0.19
Costco Wholesale Corp.	304,000	9.9	45,450	218	33	0.07
Chevron Corp.	42,595	22.6	183,531	123	531	0.29
Wells Fargo & Co.	249,435	21.4	73,578	290	86	0.12
Moderna Inc.	2,700	18.2	133,074	136	6724	5.05
Deere & Co.	75,550	19.9	82,240	242	264	0.32
DuPont de Nemours Inc.	28,000	15.1	108,955	139	540	0.50
Texas Instruments Inc.	31,000	19.2	69,407	277	619	0.89
American Water Works Company Inc.	6,400	7.4	91,238	81	1156	1.27

Comcast Corp.²

Comcast Corporation is a multinational telecommunications and media conglomerate based in Philadelphia that ranks as the 4th-largest broadcasting and cable TV company globally by revenue and the largest internet service provider in the U.S., serving both residential and commercial customers. The group also represents the third-largest pay TV company and the second-largest cable TV company by subscribers, with operations in 40 U.S. states and the District of Columbia.

² The following paragraphs make use of information found on Wikipedia for the characteristics of the firms and found in the firms’ SEC filings.

Through its NBCUniversal subsidiary, the company's media holdings include NBC, Telemundo, MSNBC, CNBC, USA Network, Syfy, and Bravo. It also owns Universal Pictures, DreamWorks Animation, Illumination, Universal Animation Studios, and the Peacock streaming service. Comcast's 2018 acquisition of Sky Group further expanded its global presence.

According to its 2022 SEC filing, Comcast Corp. had 189,000 employees and paid a median salary of \$83,840, resulting in a payroll of \$15.8 billion at that median salary. Its CEO, Brian L. Roberts, was paid a salary of \$34.0 million, which implied a CEO pay ratio of 405, a CEO pay per employee of \$180, and a B-ratio of 0.21%.

Ford Motor Co.

Ford Motor Company, founded by Henry Ford in 1903, is a multinational automaker based in Dearborn, Michigan. It produces vehicles under the Ford and Lincoln brands and is controlled by the Ford family, which retains 40% of voting rights through special Class B shares. The company is known for introducing large-scale car manufacturing techniques, notably moving assembly lines, a method that became known as Fordism by 1914.

Ford previously owned UK brands Jaguar and Land Rover, which were sold to Tata Motors in 2008, and Volvo, which it sold in 2010. The same year, the company discontinued Mercury, its upscale vehicle brand. In 2022, Ford was the second-largest U.S. automaker and the sixth-largest globally, behind Toyota, Volkswagen Group, Hyundai Motor Group, Stellantis, and General Motors. Despite financial struggles during the 2008–2010 automotive crisis, Ford did not require a government bailout, unlike its U.S. competitors, and has since returned to profitability. In 2023, the company produced 4.4 million vehicles. Joint ventures are also operated in several countries, such as China, Taiwan, Thailand, and Turkey.

According to its 2022 SEC filing, Ford Motor Co. had 183,000 employees and paid a median salary of \$64,003, resulting in a payroll of \$11.7 billion at that median salary. Its CEO, James D. Farley, was paid a salary of \$22.8 million, which implied a CEO pay ratio of 356, a CEO pay per employee of \$125, and a B-ratio of 0.19%.

Costco Wholesale Corp.

Costco Wholesale Corporation is the third-largest retailer in the world as of 2021. The company holds a leading position in the retail sale of various products, including choice and prime beef, organic foods, rotisserie chicken, and wine. Costco operates under a membership-only warehouse club model and ranks 11th on the Fortune 500 list by revenue. Founded in 1983 with its first “warehouse” in Seattle, Costco had 890 retail outlets globally, with the majority in the U.S. and Puerto Rico, alongside locations including Canada, Mexico, Japan, and the UK. In 2023, Costco had 129.5 million members worldwide. In addition to its financial performance, the company has been highly rated for customer satisfaction, ranking first in the specialty retail store industry in the American Customer Satisfaction Index in 2014.

According to its 2022 SEC filing, Costco Wholesale Corp. had 304,000 employees and paid a median salary of \$45,450, resulting in a payroll of \$13.8 billion at that median salary. Its CEO, Craig Jelinek, was paid a salary of \$9.9 million, which implied a CEO pay ratio of 218, a CEO pay per employee of \$33, and a B-ratio of 0.07%.

Chevron Corp.

Chevron Corporation is a significant energy company primarily involved in oil and gas. It is the second-largest U.S. oil company by revenue, behind ExxonMobil, another descendant of Standard Oil. Initially founded in the 1870s in Southern California as Standard Oil Company of California, it expanded significantly and became vertically integrated, covering areas such as hydrocarbon exploration, production, refining, marketing, chemicals manufacturing, and power generation. Headquartered in Houston after relocation from San Ramon, California, at the end of 2024, the company operates in more than 180 countries. Ranked 10th on the Fortune 500 in 2023, it is the only oil-and-gas company still included in the Dow Jones Industrial Average, after ExxonMobil left the index in 2020.

According to its 2022 SEC filing, Chevron Corp. had 42,595 employees and paid a median salary of \$183,531, resulting in a payroll of \$7.8 billion at that median salary. Its CEO, Michael K. Wirth, was paid a salary of \$22.6 million, which implied a CEO pay ratio of 123, a CEO pay per employee of \$531, and a B-ratio of 0.29%.

Wells Fargo & Co.

Wells Fargo & Company is a global multinational financial services firm with a presence in 35 countries and serving over 70 million customers. The company's primary subsidiary, Wells Fargo Bank, is headquartered in Sioux Falls, South Dakota, and is one of the largest U.S. banks by total assets, deposits, and market capitalization.

Considered as one of the "Big Four Banks" in the U.S., the company operates 8,050 branches, 13,000 ATMs, and 2,000 stand-alone mortgage branches. It is a key player in banking and home mortgage services, originating one in four U.S. home loans. The company is also highly valued for its brand and ranks 47th on the Fortune 500 list. The company, in its current form, was created through a 1998 merger between Wells Fargo & Company and Norwest Corporation, adopting the Wells Fargo name and establishing its headquarters in San Francisco. In 2008, the acquisition of Wachovia expanded Wells Fargo into a coast-to-coast banking presence.

According to its 2022 SEC filing, Wells Fargo & Co. had 249,435 employees and paid a median salary of \$73,578, resulting in a payroll of \$18.4 billion at that median salary. Its CEO, Charles W. Scharf, was paid a salary of \$21.4 million, which implied a CEO pay ratio of 290, a CEO pay per employee of \$86, and a B-ratio of 0.12%.

Moderna Inc.

Moderna is a pharmaceutical and biotechnology company headquartered in Cambridge, Massachusetts, specializing in ribonucleic acid (RNA) therapeutics, particularly messenger RNA (mRNA) vaccines, including its COVID-19 vaccine, Spikevax, and Respiratory syncytial virus (RSV) vaccine, Mresvia. Moderna is developing 44 treatment and vaccine candidates, including 37 in clinical trials, covering influenza, HIV, and other viruses, as well as cancer treatments. The company also develops cell therapy treatments for heart failure and has cancer immunotherapy candidates.

In 2020-21, Moderna received significant funding from Operation Warp Speed, a public-private partnership initiated by the U.S. government, to boost the development of its COVID-19 vaccine, which gained emergency use authorization in December 2020 and FDA approval in 2022. In 2022, Moderna announced a \$180 million vaccine factory in Montreal, set to produce 100 million doses of Spikevax annually by 2025. On the legal front, the company faced disputes, including a \$400 million settlement in 2023 with the National Institutes of Health, Dartmouth College, and Scripps Research over a chemical technique used in the vaccine. There is also ongoing litigation over patent issues with Arbutus Biopharma and Pfizer-BioNTech.

According to its 2022 SEC filing, Moderna Inc. had 2,700 employees and paid a median salary of \$133,074, resulting in a payroll of \$359.3 million. Its CEO, Stéphane Bancel, was paid a salary of \$18.2 million, which implied a CEO pay ratio of 136, a CEO pay per employee of \$6,724, and a B-ratio of 5.05%.

Deere & Co.

Deere and Company (John Deere) is a leading corporation founded in 1837 and based in Moline, Illinois. It is known for manufacturing agricultural machinery, including various tractor series, heavy-duty vehicles, forestry machinery, diesel engines, and lawn care equipment. The company is the largest agriculture machinery producer worldwide and ranks 84th on the 2022 Fortune 500 list. In 2018, half of the 67,000 people employed globally in the firm were based in the U.S. and Canada.

In 2017, John Deere acquired Blue River Technology, which uses machine learning and computer vision to improve agricultural practices by targeting herbicide use. In early 2022, the company unveiled a self-driving tractor aimed at large-scale farming, as part of its push for smart farming technology. The company also aims to connect its machines and equipment to a cloud-based operations center.

According to its 2022 SEC filing, Deere & Co. had 75,550 employees and paid a median salary of \$82,240, resulting in a payroll of \$6.2 billion at that median salary. Its CEO, John C. May, was paid a salary of \$19.9 million, which implied a CEO pay ratio of 242, a CEO pay per employee of \$264, and a B-ratio of 0.32%.

DuPont de Nemours Inc.

DuPont is a leading multinational chemical company headquartered in Wilmington, Delaware, founded in 1802 by French-American chemist Éleuthère Irénée du Pont. Initially specializing in gunpowder production, DuPont played a pivotal role in Delaware's economic and industrial development. Over the 20th century, the company became renowned for creating innovative materials, including iconic polymers like nylon, Kevlar, Teflon, and Lycra, as well as chemicals such as Freon for refrigerants and synthetic pigments.

In 2015, DuPont announced a merger with Dow Chemical, forming DowDuPont on August 31, 2017. This new entity, valued at an estimated \$130 billion, was the world's largest chemical company by sales before its restructuring. Over the next 18 months, DowDuPont underwent a strategic reorganization, separating its units into three independent companies: Dow Inc. (materials science), Corteva (agribusiness), and DuPont (specialty products). Following the split, DuPont retained its legacy specialty product division and its headquarters in Wilmington.

According to its 2022 SEC filing, DuPont de Nemours Inc. had 28,000 employees and paid a median salary of \$108,955, resulting in a payroll of \$3.1 billion at that median salary. Its CEO Edward D. Breen was paid a salary of \$15.1 million, which implied a CEO pay ratio of 139, a CEO pay per employee of \$540, and a B-ratio of 0.50%.

Texas Instruments Inc.

Texas Instruments (TI) is a leading multinational semiconductor company based in Dallas and ranked among the top 10 globally by sales. It specializes in analog chips and embedded processors, which generate over 80% of its revenue. The company also develops digital light processing (DLP) technology and education products such as calculators, microcontrollers, and multi-core processors.

TI's history dates back to 1930 with the founding of Geophysical Service Incorporated, which focused on seismic and defense electronics. After reorganization in 1951, TI emerged as an innovator in the semiconductor industry, achieving milestones like producing the first commercial silicon transistor and transistor radio in 1954. In the subsequent years, the company introduced groundbreaking technologies like the handheld calculator in 1967, the first single-chip microcontroller in 1970, the digital light processing (DLP) chip in 1987, revolutionizing cinema projection technology, and the TI-81 calculator in 1990, establishing itself as a leader in graphing calculators. Nowadays, TI serves over 100,000 customers and is considered a market indicator for the broader semiconductor and electronics industry.

According to its 2022 SEC filing, Texas Instruments Inc. had 31,000 employees and paid a median salary of \$69,407, resulting in a payroll of \$2.2 billion at that median salary. Its CEO, Richard K. Templeton, was paid a salary of \$19.2 million, which implied a CEO pay ratio of 277, a CEO pay per employee of \$619, and a B-ratio of 0.89%.

American Water Works Company Inc.

American Water is a public utility company based in Camden, NJ, providing water and wastewater services to about 1,700 communities across 14 states, serving approximately 14 million people and 18 military installations through a partnership with the Department of Defense. In October 2021, the company sold its homeowner services division to Apax Partners for \$1.27 billion. By mid-2024, the company had a capital investment plan of \$3.1 billion and had added 43,000 customer connections through acquisitions and growth.

American Water operates a vast infrastructure, including 80 surface water treatment plants, 480 groundwater treatment plants, 175 wastewater treatment plants, and over 53,500 miles of pipes. Its operations are regulated by state utility commissions and by federal, state, and local authorities overseeing environmental, health, and safety standards.

According to its 2022 SEC filing, American Water Works Company Inc. had 6,400 employees and paid a median salary of \$91,238, resulting in a payroll of \$583.9 million at that median salary. Its CEO, Walter Lynch, was paid a salary of \$7.4 million, which implied a CEO pay ratio of 81, a CEO pay per employee of \$1156, and a B-ratio of 1.27%.

2.3 Structure of compensation of the CEO of selected S&P 500 companies³

We continue with the examples chosen in the previous section to present in detail the breakdown of CEO compensation for these cases, showing the proportion of incentive components in total compensation and the variety of approaches used to establish compensation.⁴

COMMUNICATIONS Comcast Corp. (CEO: Brian L. Roberts)

<https://www.sec.gov/Archives/edgar/data/1166691/000120677422001186/cmcsa4011221-def14a.htm>

Salary (\$)	Bonus (\$)	Value of Stock Awards (\$)	Value of Option Awards (\$)	Non-Equity Incentive Plan Compensation (\$)	Change in Pension Value and Deferred Compensation Earnings (\$)	All Other Compensation (\$)	TOTAL (\$)
3,249,415		13,512,534	8,475,488	8,625,586	1,832	113,726	33,978,581

In 2021, Comcast Corporation's CEO, Brian L. Roberts, received total compensation of \$33,978,581. His annual base salary, set at \$3,249,415, was determined by his position and responsibilities within the organization and accounted for approximately 10% of that amount.

³ Source: EDGAR Company Filings : [SEC.gov | EDGAR | Company Filings](https://www.sec.gov/Archives/edgar/data/1166691/000120677422001186/cmcsa4011221-def14a.htm)

⁴ For a discussion of the principles of incentive pay, see BOYER, M., “The Twelve Principles of Incentive Pay”, *Revue d'Économie Politique* 121(3), Dalloz, 2011, 285-306. <https://shs.cairn.info/revue-d-economie-politique-2011-3-page-285?lang=fr>

On the equity incentive side, \$13,512,534 in stock value was awarded under the company's restricted stock plan, in the form of Performance Share Units (PSU). PSU are structured to align the interests of the CEO with shareholders and long-term value creation. They represent 60% of equity and option awards, and are based at 50% on the achievement of a long-term absolute performance metrics (Return on adjusted invested capital or ROIC, averaged for the cumulative three-year period), and at 50% on two equally weighted relative performance metrics: relative Adjusted Earnings Per Share (EPS) growth and Total Shareholder Return (TSR), both to the companies comprising the S&P 100 index over three years. In addition, \$8,475,488 of option awards, calculated using the Black-Scholes option pricing model and based on 879,200 underlying securities, were granted on March 1, 2021. They represent approximately 40% of the total value of equity and option awards, and vest over five years: 40% in year two and the remaining 60% in equal annual installments over the next three years.

The \$8,625,586 of Non-Equity Incentive Plan Compensation represented 125% of the target for annual performance-based awards granted under the company's cash bonus plans.

No bonus was distributed, and the change in Pension Value and Deferred Compensation Earnings was negligible. The other compensation of \$113,726 included \$10,000 in distributions to the company's retirement-investment plan accounts and \$103,726 for personal use of company-provided aircraft for business and personal travel.

CONSUMER DISCRETIONARY Ford Motor Co. (CEO: James D. Farley, Jr.)

https://www.sec.gov/Archives/edgar/data/37996/000110465922041499/tm2130881-4_def14a.htm#tBASA

Salary (\$)	Bonus (\$)	Value of Stock Awards (\$)	Value of Option Awards (\$)	Non-Equity Incentive Plan Compensation (\$)	Change in Pension Value and Deferred Compensation Earnings (\$)	All Other Compensation (\$)	TOTAL (\$)
1,700,000		16,078,486		3,672,000		1,362,688	22,813,174

In 2021, Ford Motor Company CEO James D. Farley received a total compensation of \$22,813,174. Annual base salary, set at \$1,700,000 according to its individual duties, performance, position, and responsibilities, as well as the company's willingness to attract top talent from all business sectors, including high-tech, made up approximately 7.5% of that amount.

Equity and stock options are awarded under the company's "Long-Term Incentive Plan". Long-term equity awards are linked at 60% to performance, referred to as "Performance Units", and at 40% to the future value of common stocks, known as "Time-Based Units". Company financial metrics considered for performance unit grants are adjusted Free Cash Flow (weighted at 50%), adjusted EBIT Margin (30%), and external Annual ROIC (20%) over three years. Stock options are not awarded regularly; none were granted in 2021. For that year, Mr. Farley received a total value of \$16,078,486 in stocks.

The Non-Equity Incentive Plan Compensation corresponds to an incentive bonus payout, computed starting with an “Incentive Bonus Target Opportunity” adjusted by a “Business Performance Factor” of 108% (despite a business performance result of 135% against established financial metrics) and then by an “Individual Performance Factor”. For Mr. Farley, the final incentive bonus payout \$3,672,000 is obtained as follows: \$3,400,000 (*Incentive Bonus Target Opportunity*) x 108% (*Business Performance Factor*) x 100% (*Individual Performance Factor*).

Mr. Farley did not participate in Ford’s defined benefit pension plans. The other compensation of \$1,362,688 comprised \$918,004 of perquisites and other personal benefits (including \$830,305 for personal use of aircraft), \$16,778 of tax reimbursements, \$11,934 of life insurance premiums, \$29,000 of contributions to 401 (k) and other retirement plans, and \$386,972 in other elements representing contributions to nonqualified benefit equalization plans related to the company.

CONSUMER STAPLES Costco Wholesale Corp. (CEO: W. Craig Jelinek)

<https://www.sec.gov/Archives/edgar/data/909832/000090983222000023/costproxy2022.htm#i8c69d23ce93e426094648d5252662bfa> 37

Salary (\$)	Bonus (\$)	Value of Stock Awards (\$)	Value of Option Awards (\$)	Non-Equity Incentive Plan Compensation (\$)	Change in Pension Value and Deferred Compensation Earnings (\$)	All Other Compensation (\$)	TOTAL (\$)
1,230,769		7,915,928		500,000	159,954	98,419	9,905,070

For fiscal year 2022, Costco Wholesale Corporation’s (Costco) CEO Craig Jelinek received a total compensation of \$9,905,070. Approximately 12.4% of this amount was fixed annual salary (\$1,230,769).

Equity awards, primarily performance-based RSUs, accounted for the largest share of the total compensation package. The purpose of this compensation is to ensure that employees and shareholders share interests. It involves meeting one-year performance targets for short-term objectives and requires employees to own shares, with vesting over up to 5 years, to encourage long-term dedication. In fiscal year 2022, the Committee awarded Mr. Jelinek 16,080 performance-based RSUs, a 7% increase from the previous fiscal year. This grant was valued at \$7,915,928, based on the closing share price at that time. The Committee determined that the maximum performance criteria were exceeded, resulting in Mr. Jelinek earning all the granted RSUs. As CEO, Mr. Jelinek must possess and hold shares of the Company's common stock worth at least seven times his annual base salary by the end of each calendar year.

The calculation of non-equity incentive compensation of \$500,000 depended on three criteria: 40% based on the company's pre-tax income goal of \$7.9 billion, which was surpassed; 40% based on target sales of \$216.5 billion; and 20% based on achieving environmental and social objectives measured by specific metrics. The potential payment for the first two factors ranged from 0% to 120%, depending on the level of achievement, while the third factor was an all-or-nothing payment based on meeting most quantitative metrics. The first two criteria were exceeded. In fiscal year

2022, Mr. Jelinek earned \$450,000 for the sales and pre-tax income components of the bonus. Additionally, he was entitled to \$100,000 for meeting most of the environmental and social targets, but he requested a reduced amount of \$50,000, which the committee granted.

Other compensations of \$98,419 included healthcare benefits and assistance with executives' retirement savings through 401(k) and deferred compensation plans.

ENERGY Chevron Corp. (CEO: Michael.K. Wirth)

<https://www.sec.gov/Archives/edgar/data/93410/000119312522098301/d292137ddef14a.htm>

Salary (\$)	Bonus (\$)	Value of Stock Awards (\$)	Value of Option Awards (\$)	Non-Equity Incentive Plan Compensation (\$)	Change in Pension Value and Deferred Compensation Earnings (\$)	All Other Compensation (\$)	TOTAL (\$)
1,650,000		12,233,699	3,874,962	4,500,000		351,624	22,610,285

For fiscal year 2021, Chevron Corp. CEO Michael K. Wirth received a total compensation of \$22,610,285. 7.3% of this amount was a fixed annual salary (\$1,650,000), determined based on business conditions and data from comparable peer companies.

The company's compensation committee set and decomposed the CEO's compensation mix as follows: 8% of base salary, 14% under the company's annual incentive plan named "Chevron Incentive Plan" (CIP), and 78% under the long-term incentive plan (LTIP). The latter two components were considered "at-risk" based on the company's performance and had higher percentages for the CEO (92%) than for the other named executive officers (84%).

CIP measured corporate annual performance ratings based on achievement of the following metrics: financial results (35% weight), capital management (30%), operating and safety performance (25%), and energy transition (10%). The overall award ranged from zero to a cap of 200% of the target. In 2021, the Chevron Board Management Compensation Committee assigned an overall CIP Corporate Performance Rating of 1.50. This value was then applied to Mr. Wirth's base salary, adjusted for another bonus percentage set according to the industry peer group, resulting in an amount of \$4,500,000 reflected in the Non-Equity Incentive Plan Compensation component.

The LTIP mix consisted of 50% Performance Shares (measured at 70% based on Relative Total Shareholder Return (TSR) against the LTIP Performance Share Peer Group over three years, and at 30% based on Relative ROCE Improvement against selected large-cap energy companies), 25% RSUs, and 25% Stock Options. In 2021, Mr. Wirth's stock (aggregating performance shares and RSUs) and option awards were valued at \$12,233,699 and \$3,874,962, respectively.

Other compensations of \$351,624 included contributions to the company's 401(k) employee savings plan (\$132,000) and various perquisites and personal benefits, such as the use of corporate aircraft (\$143,994) and residential security services (\$39,384).

FINANCIALS Wells Fargo & Co. (CEO: Charles W. Scharf)

<https://www.sec.gov/Archives/edgar/data/72971/000119312522074612/d304150ddef14a.htm>

Salary (\$)	Bonus (\$)	Value of Stock Awards (\$)	Value of Option Awards (\$)	Non-Equity Incentive Plan Compensation (\$)	Change in Pension Value and Deferred Compensation Earnings (\$)	All Other Compensation (\$)	TOTAL (\$)
2,500,000		13,485,052		5,365,854			21,350,906

For fiscal year 2021, Wells Fargo & Co. CEO Charles W. Scharf received a total compensation of \$21,350,906. 11.7% of this amount was fixed annual salary (\$2,500,000), determined, among other things, by his responsibilities, individual performance, and retention objectives.

CEO's compensation mix was initially predetermined and decomposed as follows by the company's compensation committee: 10% of base salary, 22% annual cash bonus (short-term incentive to reward results on an individual basis, and classified as Non-Equity Incentive Plan Compensation), 44% of Performance Share Awards (PSA), and 24% of Restricted Share Rights (RSR). As a result, 90% of the CEO's total remuneration was performance-based and at-risk compensation, a percentage higher than the 82% set for the other named executive officers.

The payout scale for performance share awards was based on achievement of predetermined performance metrics, namely the three-year absolute average Return on Tangible Common Equity (ROTCE) for December 31, 2021, 2022, and 2023, and ranged from 0% to 150%. Additional performance conditions related to TSR are applied. It is worth noting that these equity awards were subject to a clawback provision at the discretion of the Human Resources Committee in the event of inaccurate performance metrics, financial restatements, misconduct, risk management failures, or regulatory matters.

Under the company's non-equity incentive plan, Mr. Scharf received a total of \$5,365,854. Annual cash bonuses were also subject to recovery in the occurrence of certain events, such as misconduct and inaccurate performance metrics.

Other compensation included contributions to the company's 401(k) employee savings plan and health and welfare benefits. Mr. Scharf did not participate in these programs during 2021.

HEALTH CARE Moderna Inc. (CEO: Stéphane Bancel)

https://www.sec.gov/Archives/edgar/data/1682852/000130817922000041/lmrna2022_def14a.htm

Salary (\$)	Bonus (\$)	Value of Stock Awards (\$)	Value of Option Awards (\$)	Non-Equity Incentive Plan Compensation (\$)	Change in Pension Value and Deferred Compensation Earnings (\$)	All Other Compensation (\$)	TOTAL (\$)
990,385		3,750,000	11,250,000	1,500,000		665,354	18,155,739

In 2021, Moderna Inc. CEO Stéphane Bancel received a total compensation of \$18,155,739. The annual base salary, set at \$990,385, accounted for approximately 5.5% of this amount.

Mr. Bancel was awarded \$15,000,000 of equity compensation, \$3,750,000 in performance-based restricted stock units (PSUs), and \$11,250,000 in stock options. PSUs were introduced this year as part of the Executive Committee's equity program; they have a three-year performance period and aim to achieve product goals over that time, including advancing the COVID-19 vaccine. Grants for performance goals can range from 50% to 200% of the targeted number of shares. PSUs accounted for 25% of the equity package's grant-date fair value for each Executive Committee member. The CEO received the remaining 75% of the 2021 equity award in stock options, while the rest of the Committee received 50% options and 25% Restricted Stock Units (RSUs) as their annual award. The options and RSUs have a four-year vesting schedule, with 25% vesting on the first anniversary of the grant date and the rest vesting gradually over the next 12 quarters.

For 2021, non-equity incentives, also called “bonus”, were set at a target of 100% of base salary for the CEO, while being set at 60% to 75% of salary for other executives. \$1,500,000 reflects the company's overall performance.

Other compensation of \$665,354 consisted of retirement savings through 401(k) (\$4,350) and security services in connection with the production of the COVID-19 vaccine (\$661,004).

INDUSTRIALS Deere & Co. (CEO: John C. May)

<https://www.sec.gov/Archives/edgar/data/315189/000120677422000016/de3958541-def14a.htm>

Salary (\$)	Bonus (\$)	Value of Stock Awards (\$)	Value of Option Awards (\$)	Non-Equity Incentive Plan Compensation (\$)	Change in Pension Value and Deferred Compensation Earnings (\$)	All Other Compensation (\$)	TOTAL (\$)
1,429,174		5,991,488	3,298,699	8,055,803	741,736	395,926	19,912,826

In 2021, Deere & Co. CEO John C. May received a total compensation of \$19,912,826. Annual base salary, set at \$1,429,174 and based, among others, on his level of responsibility, individual performance, and potential, made up approximately 7% of this amount.

Deere’s performance-based compensation program consisted of short-term (under the company’s Short-Term Incentive or STI plan) and long-term components (under the Long-Term Incentive Cash or LTIC, and the Long-Term Incentive Equity or LTI plans), which were designed to align with the company’s business strategy and driven by sales and profitability metrics. Non-Equity Incentive Plan Compensation, totalling \$8,055,803 and aggregating short- and long-term components, represented a cash award for sustained profitable growth and disciplined investment over three years. Executive officers' long-term performance was evaluated based on actual results relative to a three-year performance goal, and payouts were capped at 200% of the target.

In 2021, Mr. May received STI of \$4,005,803, representing the short-term component of “Non-Equity Incentive Plan Compensation”.

Long-Term Incentive, designed to award the achievement of long-term strategic goals and the creation of sustained shareholder value, was granted through a combination of a cash plan (LTIC) and an equity program (LTI), comprising RSUs, PSUs, and stock options. The LTIC payout for Mr. May was \$4,050,000, representing the long-term component of “Non-Equity Incentive Plan Compensation”. Under the LTI plan, awards totalled \$9,290,187, consisting of \$5,991,488 in stock (PSU and RSU) and \$3,298,699 in stock option grants.

Change in Pension Value and Deferred Compensation was valued at \$741,736 and represented the actuarial present value of the CEO’s accumulated benefits under the company’s defined benefit plans.

Other compensation of \$395,926 consisted, among others, of personal use of company aircraft (\$80,707) and company contributions to defined contribution plans (\$312,962).

MATERIALS DuPont de Nemours Inc. (CEO: Edward D. Breen)

<https://www.sec.gov/Archives/edgar/data/1666700/000119312522100347/d298914ddef14a.htm>

Salary (\$)	Bonus (\$)	Value of Stock Awards (\$)	Value of Option Awards (\$)	Non-Equity Incentive Plan Compensation (\$)	Change in Pension Value and Deferred Compensation Earnings (\$)	All Other Compensation (\$)	TOTAL (\$)
1,000,000		9,274,863	2,200,006	2,269,500		362,617	15,106,986

In 2021, DuPont de Nemours Inc. CEO Edward D. Breen received a total compensation of \$15,106,986. Annual base salary, set at \$1,000,000 and based on his role, responsibilities, and experience, made up approximately 6.6% of this amount.

Management had a compensation mix policy that was primarily performance-based (a 93% target for the CEO) and aligned with stockholders' financial interests, particularly over the longer term. The incentive part consisted of a Short-Term Incentive Program (STIP, 11% target for the CEO) and of a Long-Term Incentive (LTI, 81%) program.

STIP was a cash-incentive compensation program that recognized and rewarded the successful attainment of annual financial and operational objectives, as well as individual performance. The 2021 target STIP for the CEO was 150% of the annual base salary. Financial metrics comprised Corporate Adjusted EPS (weighted at 50%) and performance measures for specific business units, i.e., revenue (20%), operating EBITDA (15%), and Net Working Capital (15%). In addition, the 2021 STIP design included a discretionary Sustainability Modifier that accounted for the Company's sustainability goals related to innovation, climate, and diversity. Noteworthy advancements in a specific target area could lead to a 10% increase in incentive payouts, and to a

10% decrease if progress was insufficient. In total, Mr. Breen received \$2,269,500 under the company's STIP, reflected in the Non-Equity Incentive Plan Component of his remuneration.

Long-Term Incentive (LTI) program for executives used a combination of Performance Share Units (PSUs, weighted at 60%), Stock Options (weighted at 20%), and Restricted Stock Units (RSUs, weighted at 20%). Adjusted ROIC and Adjusted Corporate Net Income were the main PSU metrics. At the same time, the PSU design incorporated a Relative Total Shareholder Return (TSR) modifier relative to the S&P 500 (0.75 if the relative TSR was below the 25th percentile, 1.00 between the 25th and 75th percentiles, and 1.25 above the 75th percentile). Under the LTI program, Mr. Breen received \$7,074,808 in PSU, \$2,200,055 in RSU, and \$2,200,006 in stock options.

An incentive clawback policy covering both cash and equity applied to incentive compensation in the event of executives' misconduct.

Other compensation of \$362,617 consisted of perquisites and personal benefits (\$178,117, mainly for use of company aircraft) and contributions to defined contribution plans (\$184,500).

TECHNOLOGY Texas Instruments Inc. (CEO: Richard K. Templeton)

<https://www.sec.gov/Archives/edgar/data/97476/000009747622000018/a2022proxystatement.htm>

Salary (\$)	Bonus (\$)	Value of Stock Awards (\$)	Value of Option Awards (\$)	Non-Equity Incentive Plan Compensation (\$)	Change in Pension Value and Deferred Compensation Earnings (\$)	All Other Compensation (\$)	TOTAL (\$)
1,376,667	4,125,000	6,500,124	6,500,005	275,333		418,282	19,195,411

In 2021, Texas Instruments Inc. CEO Richard K. Templeton received a total compensation of \$19,195,411. Annual base salary, set at \$1,376,667 and based on his role, responsibilities and experience, made up approximately 7.2% of this amount.

The compensation program at TI is designed to reward executives based on performance and to incentivize them to consider shareholders' interests in the short and long term. The committee does not use formulas, thresholds, or multiples when assessing performance and compensation decisions, recognizing that the relevance of thresholds set at the start of a year may be rendered insignificant by the end of the year due to potential changes in market conditions within the industry. The committee evaluates the company's absolute and relative performance retrospectively after the year-end (for the most recent one- and three-year periods).

Near-term compensation, awarded in cash, consists of two components: A "performance cash bonus", based on the company's relative and absolute performance, as well as the individual performance of the executives. This bonus is primarily determined by comparing the company's one-year and three-year performance on specific metrics, including revenue growth, operating margin, and total shareholder return, with that of competitors. Cash compensation is set above or

below the median based on the company's performance relative to competitors. In 2021, Mr. Templeton received a performance bonus of \$4,125,000.

In addition, Texas Instruments designed a “profit sharing” program with a payout level computed by a formula based on the company's annual operating profit margin. If the company-level yearly operating profit margin was below 10% of revenue, no profit sharing was given. If the Margin was exactly 10%, profit sharing equaled 2% of the base salary. If the Margin exceeded 10%, profit sharing increased by 0.5% of the base salary for each percentage point of Margin between 10% and 24%, and by 1% of the base salary for each percentage point of margin above 24%. The maximum amount was set at 20% of the base salary. Given that Texas Instruments achieved a 48.8% margin in 2021, “profit sharing” amounted to 20% of annual base salary. For Mr. Templeton, this amounted to \$275,333, classified under the “Non-Equity Incentive Plan Compensation” component of his total compensation mix.

Long-term compensation is awarded in equity, granted in the form of Stock options and Restricted Stock Units. Instead of relying on formulas, performance targets or thresholds, the Committee targets the median level of share-based compensation awarded to executives in similar positions within the comparator group. Under the company’s long-term incentive plan, Mr. Templeton was granted 38,410 RSU valued at \$6,500,124 and 159,706 stock options for a total value of \$6,500,005.

Other compensation of \$418,282 consisted of perquisites and personal benefits (\$119,822, mainly for use of company aircraft), contributions to 401 (k) \$11,600, and contributions to defined contribution retirement plans (\$286,860).

UTILITIES American Water Works Company Inc. (CEO: Walter J. Lynch)

<https://www.sec.gov/Archives/edgar/data/1410636/000119312522087507/d623471ddef14a.htm>

Salary (\$)	Bonus (\$)	Value of Stock Awards (\$)	Value of Option Awards (\$)	Non-Equity Incentive Plan Compensation (\$)	Change in Pension Value and Deferred Compensation Earnings (\$)	All Other Compensation (\$)	TOTAL (\$)
994,616		3,999,969		1,266,022	1,017,097	120,424	7,398,128

In 2021, American Water Works Company CEO Walter Lynch received a total compensation of \$7,398,128. The annual base salary, set at \$994,616 based on the median of peer companies for his position, accounted for approximately 13.4% of this amount. The company’s compensation committee initially allocated the CEO’s compensation as follows: 16% to base salary, 18% to the company’s “Annual Performance Plan” (APP), and 66% to the “Long-Term Performance Plan” (LTPP). Accordingly, 84% of the CEO’s total remuneration was performance-based and at-risk compensation, compared to 67% for the other named executive officers.

The company’s APP for 2021 was designed around specific strategic metrics, including employee safety (injury rate), customer satisfaction, environmental leadership (environmental compliance and drinking water quality), and growth (adjusted EPS). No payouts would have been made if EPS

was below 90 percent of the target. The Compensation Committee established a corporate performance multiplier applied to annual base salary, based on the threshold, target, and maximum performance requirements, as well as the weight assigned to each measure. In 2021, the Committee determined a 117.5% multiplier for each executive. For Mr. Lynch, payout represented \$1,266,022, classified in the “Non-Equity Incentive Plan Compensation” component of his total compensation mix.

The LTPP is an incentive program based on long-term business objectives. LTPP awards comprise 30% in Restricted Stock Units (RSUs) and 70% in Performance Stock Units (PSUs). In 2021, PSU awards were equally allocated between share awards based on total shareholder return relative to peer group companies and share awards based on the company’s compounded EPS growth rate. No stock options were granted under the LTPP. Mr. Lynch received \$2,799,989 in PSU and \$1,199,980 in RSU, for a total of \$3,999,969 in equity awards.

The \$1,017,097 in the “Change in Pension Value and Deferred Compensation Earnings” represented the changes in the actuarial present values of accumulated benefits under the company’s defined benefit pension plans.

Other compensation of \$120,424 consisted of, among other things, retirement savings (\$7,250), company contributions to the deferred compensation plan (\$17,490), and dividend equivalents (\$93,123), paid with respect to PSUs and RSUs upon conversion to common stock.

3 The value of management (CEO)

Why are CEOs paid such large absolute amounts in compensation, namely \$16.3 million on average over the 490 firms considered here?

The Corporate Finance Institute states that the roles and responsibilities of a CEO vary from one company to another, depending in part on the company's organizational structure and/or size. In larger companies, the CEO focuses only on “high-level corporate strategy and major company decisions.” The typical duties, responsibilities, and job description of a CEO include, among others: leading the development of the company’s short- and long-term strategy; maintaining awareness of the competitive market landscape, expansion opportunities, and industry developments; assessing risks to the company and ensuring they are monitored and minimized; and setting strategic goals and making sure they are measurable and describable.

In other words, the CEO personifies first and foremost the design, development, and management of the firm’s real options.

3.2 The real options approach (Boyer, Christoffersen, Pavlov, and Lasserre 2004)

The real options approach considers strategic management and decision-making as a process aimed at actively reducing exposure to downside risk and promoting exposure to upside opportunities. It stands at the hinge between pure finance and other areas of decision making under risk, such as

project evaluation, market entry and exit, organizational restructuring and re-engineering, technology adoption, climate change and biodiversity decisions, etc.

The approach underlines a frame of mind and uses methodologies that appeal to a wide array of managers, providing a common language and meeting a critical responsibility of the CEO. Real options have applications across many areas central to modern corporations: market coverage and development, finance, human resources management, technology management, R&D, and knowledge management.

Thinking in terms of real options represents a significant development in strategic planning but remains relatively unknown despite its adoption by many large firms worldwide. Nonetheless, as shown in the academic literature and argued in some of the quotes below, the contribution of higher-level managers to a firm's value lies in the creation and exercise of real options. Indeed, the value of strategic management, and the CEO in particular, can be assessed that way.

At a more macroeconomic level, the efficiency of financial systems rests primarily on proper risk assessment and management in project evaluation. The real options approach is a crucial analytical tool to fulfill this need and serve as a link between the financial and real sectors.

Some quotes from the business press:

- “The oil, energy and pharmaceutical industries have long used the real options framework to assign value to non-financial assets like R&D projects and oil leases. ‘Real options prices the value of an opportunity,’ says Brice Hill, controller in the server division of Intel Corp. in Hillsboro, Ore. And companies can use a real options valuation to determine how much they are willing to spend to create an option on a particular opportunity. ‘It used to be that any level of investment was appropriate to create a strategic option,’ says Hill. ‘But now if an option has a specific value -- say, \$50 million - - then a company might be willing to spend up to \$50 million to create that option.’” (Business Finance)
- “Real-options analysis rewards flexibility and that’s what makes it better than today’s standard decision-making tool, ‘net present value.’ NPV calculates the value of a project by predicting its payouts, adjusting them for risk, and subtracting the investment outlay. But by boiling down all the possibilities for the future into a single scenario, NPV doesn’t account for the ability of executives to react to new circumstances, for instance, spend a little up front, see how things develop, then either cancel or go full speed ahead.” (Business Week)
- “The real option approach emphasizes that many investments create important, follow-on opportunities that a company may or may not subsequently exploit. Consequently, the real option approach highlights value that is contingent on earlier investments. For instance, while a given R&D investment may have a very low or even negative net present value, it may also provide platforms for future, favorable investments. Real options bear some other similarities to financial options. For example, the value of both types of options increases with uncertainty. Further, by providing managers discretion - rights but not obligations – financial and real options can help companies limit their downside risk while also gaining access to upside

opportunities in the future. However, unlike financial options, real options come into existence by the opportunities created by the company's strategic investments. Because their underlying assets do not trade in liquid markets, real options also present unique valuation challenges.” (Financial Times)

- “Real options valuation grounds strategic thinking and decision-making in concrete financial analysis. ‘When companies make strategic investments, they tend to do so with a thumbs up or thumbs down from the CEO and no financial analysis to the decision,’ says John McCormack, senior vice president and head of the energy practice at Stern Stewart & Co., a management consultancy in New York City. ‘But when you have strategic investments that require choices in the future,’ real options can guide those decisions. The model also enables an organization to recalculate the value of a project or investment as it progresses and to understand what must happen before the project or investment can move successfully into the next stage of development. (Business Finance)
- “Exploit hidden assets and you will succeed. Neglect them and you will wind up with a collection of old nags. What kind of hidden assets do I mean? For example, the unexploited opportunities to add a new product line, expand overseas or engage in e-commerce are hidden assets that do not appear on a company's financial statements and have not yet contributed to its profits. When you buy a company, you often get these features for free. I call them ‘real options,’ an analogy to the financial options traded in Chicago. There's a big difference, though. Financial options remain valuable when held by passive investors. But owning a business is not a passive exercise. The owner has a real job to do, providing governance, managing capital and helping a business achieve its potential.” (Forbes magazine)
- “Real options analysis is based on the observation that a company evaluating an existing asset or potential investment is in much the same position as the holder of a financial option. The holder of a financial put option on, say, the price of oil can exercise that option if the price rises above a pre-agreed level, but doesn't have to if the price falls. Similarly, the owner of a marginally profitable oil field has the right to exploit it if the price of oil rises, but is not obliged to do so if it doesn't. That observation leads to the assumption that the future value of such an investment can be best valued in a similar way to financial options, rather than by simply discounting the cash flows expected from it in future. In particular, option valuation takes into account the risks and rewards of future uncertainty, or volatility, which traditional discounted cash flow (DCF) models do not.” (CFO Europe)⁵
- “To evaluate potential projects, they almost invariably have to resort to a theory of corporate finance called the ‘Capital Asset Pricing Model’ (CAPM). Yet real-life managers tend not to like this model, for the simple reason that it ignores the value of real-life managers. In the ivory tower, they are talking about ditching the CAPM for a rival, called “real options theory”, that places managers at its very core. More fundamentally, the flaw in the CAPM is that it implicitly

⁵ See Boyer, M., Gravel, É., “Évaluation options réelles du projet VEGA de Northern Canada Gas”, CIRANO 2012s-26, 63 pages. <https://cirano.qc.ca/files/publications/2012s-26.pdf>

assumes that when firms buy new assets, they hold these passively for the life of the project. But they do not. Instead, they employ managers precisely in order to react to events as they unfold. Obviously, this managerial flexibility must be worth something. Options on “real” assets (and indeed poker bets) behave rather like options on financial assets (puts and calls on shares or currencies, say). The similarities are such that they can, at least in theory, be valued according to the same methodology. There is a snag, of course: sheer complexity. Pricing financial options is daunting, but valuing real options is harder still. Their term, unlike that of financial options, is usually open-ended or undefinable. The volatility of the underlying asset can be difficult to measure or guess, especially since it is not always clear what it is - if, for example, it is yet to be invented. How can one define the appropriate benchmark asset-class in the case of a new drug for a rare disease? And there may be additional variables to consider, such as the strategic benefit of pre-empting a rival.” (The Economist)

The real options approach does not pretend to be and will not become a substitute for proven business values and virtues. A better appreciation and exploitation of risks and opportunities will neither completely shield a firm from the dangers inherent to business nor fully protect it from the temptations of fraudulent behavior.

As a direct outgrowth of finance, the real options approach uses techniques and methodologies that prevail in that field. However, finance is mainly concerned with evaluating and pricing financial instruments, including put and call options of many kinds. As the real options approach percolates into various areas of management and decision-making, there is a shift in emphasis from pure evaluation to decision analysis and optimization.

The origin of the real option approach can be traced back to the remark by Steward Myers of MIT that holding a real investment project like the construction of a plant (or the adoption of a new technology, a restructuring plan, the exploration of a new market or product, the development of an R&D program) was formally similar to holding a financial call option. A real investment project involves the option, but not the obligation, to spend resources at some future time to obtain an asset (an operating plant) whose value is usually stochastic. The randomness of a financial option arises from the fact that the underlying asset is typically a stock, so that, at the time the option is acquired, it is not clear whether the known exercise price will be lower or higher than the still unknown stock price in the future; thus, the option may never be exercised. Similarly, suppose the price of the projected plant’s output does not evolve favorably, or that further research reveals operating costs would be high. It may not be worth completing, that is, engaging in the n -th stage, or exercising the plant construction option. The distinction between option evaluation and decision making is only a matter of emphasis. In fact, evaluation requires solving the decision problem raised by the option: should it be exercised and when? But the distinction is important: it underlines that good decision-making creates value. As we argue below, the objective of applying the real option approach to decision making in organizations is to create value by capturing the full value of the firm’s potential. This approach brings the strong discipline of finance into other areas of corporate planning activities, public policies, and individual endeavors.

Another difference between financial options and real options arises from the nature of the uncertainty affecting the underlying asset. In the world of financial options, uncertainty revolves around future stock prices. Uncertainty is then a source of value because of the limited downside and unlimited upside fluctuations in the pay-off, linked to the exogenous (outside the control of managers) variability (volatility) of the price of the underlying financial assets.

In the world of real options, uncertainty has value because senior executives can manage project uncertainty. In a world without uncertainty, managers would not be needed. Chief executive officers add value to the firm by actively managing change as uncertainty unfolds over time. In a sense, the real options approach attempts to quantify the value of managers' active management of uncertainty, particularly the CEO's. This crucial difference in the nature of uncertainty has its counterpart in the nature of the information to be used for option evaluation and management. For financial options, most of the time, long and frequent data series on stock prices are available. For a real option, such as the construction of a production plant, the uncertainty arises from future prices or production costs. While product prices may resemble stock prices, they are not usually recorded with the same accuracy, nor do the same factors drive them. When it comes to cost evaluation, the form and nature of the available data are fundamentally different.

There are also differences in the institutional environment characterizing the option evaluation and decision-making problem. An important one is that financial markets are often rich and dense enough that appropriate portfolios of existing traded assets can duplicate the risks associated with the asset underlying a particular option. It is under such circumstances that the celebrated Black-Scholes-Merton approach is applicable. In the case of many real options, this so-called 'spanning' assumption cannot be invoked because markets are thin and opaque, so that other techniques, such as stochastic dynamic programming, must be used instead of the contingent claims approach prevalent in financial applications.

Although widely used in finance, techniques such as stochastic dynamic optimization are far from being specific to that field. Used by managers and engineers as well, they often constitute a common tool and language through which real options techniques and methodologies are spreading more easily from finance into other areas.

Indeed, the technical dimension of option evaluation is essential and is part of the conceptual breakthrough recognized by the 1997 Nobel Prize in Economics, awarded to Robert C. Merton and Myron S. Scholes, "for a new method to determine the value of derivatives."

But beyond techniques, the real options approach is primarily a way of thinking and adjusting one's behavior accordingly. Its application throughout the firm is a responsibility of the CEO. It is based on the explicit

- recognition that uncertainty creates opportunities and value;
- recognition that such value requires adequate decisions to materialize;
- identification of the sources of uncertainty and collection of information;

- identification of the decisions (options) that promote exposure to favorable outcomes;
- identification of the decisions that reduce exposure to downside risk;
- design of optimal decision *rules*.

Project evaluation in a broad sense is the most obvious application of the real options approach, although by no means the only one or the major one. Before the real options approach, the standard evaluation procedure was discounted net present value (NPV). The real options approach is best seen as an improvement on conventional discounted net present value determination; it does not invalidate the procedure but amends how it is applied. In fact, the real options approach rationalizes what many CEOs, as well as high and middle managers, are already doing on intuitive grounds:

- attach importance to the timing of decisions;
- identify and evaluate downside risks and upside opportunities associated with the project;
- identify, evaluate, and optimize future decisions that may affect exposure to downside or upside fluctuations;
- to sum up: optimally manage the creation and use of flexibility as a device to exploit uncertainty.

Once these project dimensions are introduced, projects become proactive instruments that modify how uncertainty affects outcomes in the decision maker's favor. Proper evaluation of costs and benefits has always been crucial in conventional net present value evaluation. In a real options approach, cost and benefit evaluation become more difficult but more realistic. Options created by the project now enter as benefits; options used up or exercised by the project enter as costs. In both cases, these options must be valued, and in most cases, this evaluation involves finding the optimal way to decide whether and when to create (buy), hold, or use up an option.

A real options approach helps executives quantify the value of active management (CEO). Since conventional NPV calculations are typically based on the discounted value of average outcomes, the ability of executives to actively manage a project is not accounted for. Therefore, the conventional NPV will typically underestimate the project's actual NPV. Active management limits the downside and enhances the upside of the distribution of NPV outcomes, and can even shift the expected NPV from negative to positive. Moreover, the ordering of mutually exclusive projects or strategies may differ.

In fact, the real options approach rationalizes, structures, and makes more rigorous the so-called "gut feeling" effect. The upshot is that if the conventional NPV approach is taken, truly profitable or more profitable projects and strategies are not implemented, thereby reducing the firm's shareholder value below its maximum.

The real options approach may bring the discipline and accuracy of finance into various areas of decision-making. The approach is relevant to a wide range of management and strategic decisions involving uncertainty and irreversibility. This is why many pioneering firms are starting to use it to better leverage a proactive management approach and create value.

Implementing a real options approach is not easy, however. The standard procedures used in finance must often be adapted or replaced with other techniques. Each application of the real options approach is likely to be context-specific. The available options must be envisaged and described; the relevant information must be carefully identified and collected; and the executive using a real options approach must have the required knowledge and training to adapt standard procedures to each particular situation. Perhaps most importantly, the real options approach is a state of mind, a capacity and willingness to detect decisions that create opportunities or protect against mishaps, and act upon them to create value for the firm. The role of the CEO in shaping such a culture cannot be underestimated.

For managers with such a state of mind, the real options approach is a tool that helps them align intuition with the prescriptions of rigorous decision-making procedures. More importantly, it allows them to provide more accurate quantitative content and value for intuitive rules, thus gaining an edge over competitors.⁶ The implementation of a real options approach could be very valuable, but it is also a challenging task. However, it is very much in the spirit of real options to finish with a sobering quote from before the Enron debacle:

- “Enron President and Chief Operating Officer Jeffrey K. Skilling (credited) real options thinking with helping Enron transform itself from a U.S. natural-gas pipeline company into a global wheeler-dealer that trades commodities including gas, electricity, water, and, most recently, telecom bandwidth.” (Business Week 1999)

Indeed, a bad CEO could be highly detrimental to the well-being of all stakeholders, workers, managers, shareholders, suppliers, and customers. Numerous examples could be given, but let us mention five particularly striking cases from Emma Woollacott, “Lessons from history’s worst CEOs,” *Chief Executive Magazine*, July 18, 2018. In the words of Emma Woollacott, “One of the markers of a good business leader is a desire to constantly learn and improve. As a result, there’s a huge market for self-improvement – from CEO autobiographies to TED Talks to books on management and achievement. But how much can you really learn from success? Take Steve Jobs, who built the massive Apple empire from scratch, for example. Can we identify the crucial factor to his success? Was it his powerful drive? His marketing savvy? Or something completely different? The causes of failure, on the other hand, can be a lot easier to pinpoint, especially when they bring a previously successful organization down. And while it’s a truism that we learn best from mistakes, those mistakes don’t have to be our own.”

Let us briefly consider some of those she believes are “the worst CEOs in history.” The description is hers.

⁶ In a truly strategic context, where decision-makers are optimizing in a reactive environment (competitors), the value added nature of a real options approach is even more striking, although quite different from the financial options contexts. See chapter 20 in Boyer, M. (2026), *Advanced Methods of Investment Evaluation: A Cookbook*, Hiver/Winter 2026, 6001pages. .

- “Kay Whitmore (Eastman Kodak). This story is one of complacency and lack of vision. In 1990, Kay Whitmore’s first year as CEO of Kodak, he famously fell asleep in a meeting with Bill Gates at which integrating the company’s products with Windows was being discussed. Indeed, despite the fact that Eastman Kodak had actually developed the digital camera in 1975, Whitmore refused to take the technology seriously and failed to invest. As digital started to take over the world, the company fell into decline. Whitmore was fired after three years, mainly for failing to cut costs enough. Lesson: Whitmore’s background was squarely in film, and he failed completely to see the opportunities in the digital world.
- “Carly Fiorina (HP). When Carly Fiorina became CEO of HP in 1999, she described herself as a ‘change agent’ – and change the company she certainly did. By the time she left six years later, HP had lost half its value and thousands of staff, although Fiorina still paid herself plenty. Poor decisions included trying to buy PricewaterhouseCoopers for US\$14 billion; after she was dissuaded, it went to IBM for less than US\$4 billion. Meanwhile, a merger with Compaq was widely seen as a disaster. The day Fiorina was fired, HP’s market value increased by US\$3 billion. Lesson: Fiorina antagonised workers and investors alike while apparently never doubting her own rightness. Listen to those around you.
- “Warren Anderson (Union Carbide). Warren Anderson was CEO of US chemical company Union Carbide when a plant in Bhopal, India, leaked more than 40 tons of poisonous gas into the surrounding city, killing several thousand people and seriously harming hundreds of thousands more. While Anderson had the fortitude to visit Bhopal a few days later, he fled after being arrested and released on bail, never to return. The company claimed that the accident was caused by a disgruntled employee, and that the Indian government was at fault for allowing people to live so close to the site. But Anderson himself admitted that the plant did not have the same safety standards as those in the US. Lesson: Anderson was apparently devastated by the disaster, but the fact remains that the buck stops at the top.
- “John Sculley (Apple). John Sculley was hired away from PepsiCo for his business experience and marketing skills – but ended up forcing out Steve Jobs, who had not only recruited him but was undoubtedly the real driving force behind the company. Sculley is said to have seen Jobs, a superb marketer himself, as a rival. Sculley lacked real technical knowledge and made a number of shaky product decisions, including launching the Apple Newton and moving into the camera and CD player businesses. In the end, of course, Jobs was brought back; by then, Sculley had been fired after a decade of problems. Lesson: Don’t let your emotions lead you into making poor decisions.
- “Ken Lay (Enron). There’s an element of Greek tragedy about the rise and fall of Ken Lay. Under his leadership, energy giant Enron grew into a US\$100-billion business – before losing 99.7% of its value in 2001. Lay scores double points as a disastrous CEO, displaying incompetence as well as dishonesty. Uninterested in the day-to-day running of the company, he gave free rein to a couple of distinctly dodgy subordinates. As the company faltered, he signed off on a massive accounting fraud designed to inflate the firm’s financial health. Lay died of a heart attack in July 2006, shortly before being sentenced, but it had been expected that

he'd get up to 30 years in prison for his part in the deceit. Lesson: Enron's corporate culture was focused on increasing revenue at all costs. Make sure you aren't incentivising a lack of ethics.

- “Gerald Ratner (Ratners Group). This CEO and Chairman only really made one mistake but boy, was it a big one; so big, in fact, that it's now known as the Ratner Effect. In a magazine interview, Gerald Ratner, of the eponymous jewellery company, described a cut-glass sherry decanter set sold in his shops as “total crap” and went on to insult other products too. Customers fled, and millions of pounds were wiped off the value of the business. Ratner hired a new chairman, who went on to fire him. Lesson: Always treat your customers with respect.
- “Chen Jiulin (China Aviation Oil). For a long time, Chen Jiulin was hailed as a superb managing director and CEO; under his leadership, China Aviation Oil's net asset worth rose by an extraordinary 85,200% to US\$150 million. However, speculative oil price trading nearly brought the company down and Chen tried to hide what had happened. In 2006, he was sentenced to four years and three months in jail after failing to disclose a US\$550 million trading loss. Lesson: Don't gamble with your company's assets; it always ends in tears.

The message: make sure that you hire a good, if not excellent, CEO. The CEO can have a significant impact on the future of your firm, in particular its profitability, sustainability, growth, job creation, and productivity gains (hence salary gains), and, in so doing, protect your job, now and in the future, including your pensions.

3.3 Understanding the value and compensation of CEOs

In their study on the underlying factors of managerial compensation across industries and countries, Christoffersen and Pavlov (2003) write: “[M]anagers in different countries and industries are compensated very differently, not necessarily because their skills differ substantially, but rather because the scope for management to add value to the firms varies substantially.” The authors consider “a continuous time model of the firm, where the economic environment evolves stochastically over time and where changes to the firm operations are costly.”

The underlying idea is that if adjustment costs are low and/or if the economic environment is relatively volatile, then the potential CEO impact through value-added active management is larger. The positive relationship between the volatility of the economic climate and the value of the CEO suggests a real options interpretation of the CEO's management role. Active management and leadership by the CEO means optimally exercising the firm's real options, that is, making timely changes in the firm's strategies, operations, investments, and risk management in reaction to changes in the firm's environment: the higher the volatility of the firm's environment and the economy, the larger the potential value of the CEO. In addition to the overall success of an organization or company, the CEO is responsible for leading the development and execution of long-term strategies to increase shareholder value.

The variation in managerial compensation across countries is important. According to the BBC News Service citing Bloomberg sources,⁷ the U.S. “CEO to average worker pay ratio” and the “Annual CEO wage” were respectively 265 and \$14.25M (million) in 2018. The corresponding numbers for other countries were: India 229, \$1.16M; UK 201, \$7.95M; South Africa 180, \$2.21M; Netherlands 171, \$8.24M; Switzerland 152, \$8.5M; Canada 149, \$6.49M; Spain 143, \$4.89M; Germany 136, \$6.17M; China 127, \$1.87M; South Korea 66, \$2.32M; Mexico 62, \$1.29M; Sweden 60, \$2.79M; Singapore 56, \$4.62M.

Christoffersen and Pavlov provide common-sense arguments suggesting several explanations for this disparity. The following explanations are taken *passim* from their paper.

First, the cost of living and overall quality of life: higher compensation in some countries reflects higher living costs. Abowd and Kaplan (1999), among others, address this potential explanation and show that CEO pay across various OECD countries varies substantially even after adjusting for purchasing-power-parity exchange rates.

Second, CEOs in high-income countries are paid more simply because everybody in those countries is paid more. While this is a very appealing argument supported by anecdotal evidence, it turns out that mid-level managers' pay and manufacturing operatives' pay are substantially less variable across countries than the CEO compensation. The international compensation puzzle thus appears primarily to be a CEO phenomenon.

Third, it is conceivable that the variation in CEO pay is due to differences in taxation, with after-tax income comparable. Christoffersen and Pavlov show that the after-tax CEO pay also varies significantly across countries. They conclude that international variation in CEO pay is clearly not explained by differences in tax rates.

Fourth, disparity is temporary, and CEO pay will converge over time. Again, the data suggest that CEO pay variation is consistent over time. Christoffersen and Pavlov claim that there is no evidence that CEO pay across countries is converging over time.

Fifth, disparities in CEO compensation correspond to differences in competencies. Christoffersen and Pavlov claim that “the compensation puzzle becomes even more intriguing when one considers the widespread phenomenon that the CEOs in the largest companies around the World tend to go to the same business schools in North America and Europe. Taking this feature to the extreme, we can consider managers across countries and industries to have roughly the same skills, yet they get paid very differently.”

Sixth, there remains “the possibility that the variation in CEO compensation may arise from the varying business environments in different industries and countries. Traditional models of managerial compensation largely rely on principal-agent settings, where the manager extracts rents

⁷ Fernando Duarte 9 Jan 2019 <https://www.bbc.com/worklife/article/20190108-how-long-it-takes-a-ceo-to-earn-more-than-you-do-in-a-year>

from the company owners' inability to observe managerial effort." Christoffersen and Pavlov see the principal-agent framework as usefully applicable for many purposes. Still, they claim that it does not appear to provide insight into the cross-country and cross-industry variation in managerial compensation: "It is hard to imagine that principal-agent problems are so much worse in the US than in New Zealand that they explain a six-fold difference in managerial compensation for similar-size companies."

Christoffersen and Pavlov use the tools from the options compensation literature to "focus on the differences in the business environments in which CEOs operate, and it is therefore useful to consider the avenues through which a CEO can add value to a company." They group these sources of value into the following broad areas:

- Expansion of market opportunities
- Investment in new products and technologies
- Managing uncertain demand
- Production management in the face of uncertain technologies
- Managing the inputs to the production

Each of these may be country-specific, but Christoffersen and Pavlov focus on the last one. They show that the value of a CEO, hence his/her compensation, is "related to the management of the optimal composition of inputs into the production of the output of the firm", which is continuously changed as the relative prices of the inputs change. Hence, "the scope for managing the production plan is largest in countries or industries where the input prices are the most volatile and where the adjustment costs are the smallest."

Christoffersen and Pavlov develop a simulation model that "predicts that managerial compensation, for example, will be highest in countries with a low degree of unionization, and in countries with open capital markets. Implicitly, the model also predicts that if over time countries become decreasingly unionized and capital markets increasingly liberalized, then differences in CEO pay across countries should decrease."

In a different context and line of research, Boyer, Boyer, and Garcia (BBG, 2013) view the firm as a nexus of activities and projects and propose a characterization in which variations in the market price of risk induce desirable but difficult adjustments in the firm's portfolio of projects. In a setting where managers disagree about which investments maximize value, changing the portfolio of projects incurs coordination costs between senior operations managers and (real) risk managers.

Although BBG consider the role of financial risk management in allowing the resolution of conflicts and thereby favoring value-maximizing changes in the firm's portfolio of operations and real risk management activities, it is possible to reinterpret their results in terms of how important the role of the CEO is, hence his/her compensation.

BBG show that the use of financial derivatives reduces coordination costs by moving the organization's cash flow expectations and risks toward a point where coordination in favor of real

changes is easier to achieve. They find empirical support for this new rationale for the use of financial derivatives, after controlling for the traditional variables that explain the need for financial risk management.

In the context of assessing the value of CEOs, we saw how Christoffersen and Pavlov link the CEO's capacity to modify the firm's production plan in response to changes in relative input prices. Two factors favor a higher value for the CEO: the volatility of the environment (in input prices) and the costs of inducing changes, in particular, but not only the restrictions imposed on the CEO's freedom to act (for instance, through a high rate of unionism).

In the BBG context, it is the direct use by the CEO of financial and real options instruments that enables more and better coordination at lower cost toward value-enhancing changes in the firm's portfolio of activities, strategies, and projects in response to changes in the market price of risk.

Indeed, changing the portfolio of projects is, in general, complex and costly, since it means that the firm's specialists, plant or division operations, and risk managers must agree and coordinate their efforts to alter the mix, thereby creating conflicts if the specialists do not have the same information or objectives.⁸

BBG derive the prediction that the use of financial instruments will be more pronounced when the transformation possibility frontier (between the riskiness and expected value of project cash flows) is such that a slight movement in the market price of risk will lead to significant adjustments in the firm's strategic portfolio of projects, a concept that they name reactivity. To test the model, they collected information for 269 large US firms for the years 1993 to 2004.

They show that there is a strong relationship at the industry level between reactivity and the use of financial derivative instruments, and that, using firm-level data, reactivity has a significant positive impact on the number of risks a firm manages through financial derivatives.

Their results are indeed consistent with and an answer to Stulz (1996) who observed that "Perhaps more puzzling, however, is that many companies appear to be using [financial] risk management to pursue goals other than variance reduction" and Guay and Kothari (2003) who suggest that firms may be "using derivatives for purposes other than those predicted by traditional risk-management theory."

Given market conditions, all feasible combinations of projects and activities can be valued to identify the combination that maximizes firm value. As a result, firm value is determined by the portfolio of projects and activities and the market price of risk. As the market price of risk changes,

⁸ Through discussions with senior corporate executives, BBG were comforted in the idea that coordination problems associated with major strategic activities, decisions, and investments were tackled by high-level committees involving senior executives from different business units, firm-wide management functions, and board representatives. A consensus must be reached before the reviewed investments, actions, and changes in activities can be pursued and implemented. Similar issues are also highlighted in *The Renewed Finance Function – Extending Performance Management Beyond Finance*, CFO Research Services, CFO Publishing Corporation, November 2007.

a firm must adjust its portfolio of projects, thereby changing its aggregate distribution of cash flows, to achieve a new optimal position on its transformation possibility frontier.

Depending on the shape of this frontier, the adjustments will be more or less pronounced. Movement towards the new optimal combination of projects may lead to disagreements between specialized functional managers or business units, given their respective specific objectives. BBG argue that the use of financial instruments acts as a managerial conflict resolution tool, thereby giving the financial risk manager a role as facilitator within the firm.

In our present case of CEO value-enhancing role, we would predict that the CEO value and hence the CEO compensation would be related to the shape of the transformation possibility frontier (between the riskiness and expected value of project cash flows): when a slight movement in the market price of risk induces significant adjustments in the firm's strategic portfolio of projects, the value of CEO as facilitator of changes is higher, hence his/her compensation.

In such a context, the key role of the CEO is to alleviate problems related to the distribution, communication, and processing of information (Bolton and Dewatripont 1984), to the pervasive presence of specialists in complex organizations (Holmström 1984, Hart and Moore 2005), to the limited control of business unit managers (Dessein et al. 2006), and to the decentralized functional authority framework (Roberts 2004).⁹

The transformation possibility frontier implicitly includes both technological and strategic characteristics of a firm. The representation, therefore, captures a firm's ability to change its risk characteristics by altering its project portfolio. These changes may increase the firm's value by decreasing its cash-flow beta (Stulz 2004) or by increasing it if doing so yields sufficiently higher expected cash flows. In the same spirit, the firm's reactivity with respect to the market price of risk is an essential factor in the value of the CEO (or the use of financial derivative products in the BBG context).

BBG show that firms whose cash flows are more reactive to changes in the market price of risk will be those where managerial conflicts will be costlier, and thus should be in the direst need for conflict resolution. In that sense, the simple theoretical and empirical findings they present support the idea that financial risk management alleviates coordination problems between different firm functions and divisions and reduces the cost of managerial conflicts. Alternatively, in the same context, the CEO becomes more powerful and valuable. The new BBG's rationale for corporate risk management theory, and the simple empirical test that they conduct, opens up a new area of research for further developing and testing the idea that the complexity of the modern firm may enhance the role of financial derivatives as well as the relative importance, hence compensation, of CEOs.

⁹ The trade-off between specialization benefits and coordination costs and the impact of such trade-off on organizational structure have been noted by many authors. See Becker and Murphy (1993) and Boyer and Robert (2006).

4 Conclusion

The CEO pay ratio, defined as the CEO's total compensation over the median comprehensive pay of the firm's employees, is one of the most discussed topics in society today. The CEO pay ratio for the S&P 500 firms (the largest US-traded firms by capitalization) reached an average of 292 in 2022, a median of 190, and a weighted average of 194, the last two ratios being more representative of the overall distribution of relative CEO pay. Other ratios, clearly more informative and revealing for stakeholders (employees, citizens, shareholders, suppliers and clients) are the CEO pay per employee (average of \$2,111, median of \$668, weighted average of \$310) and the B-ratio, defined as the CEO pay over the total payroll of the firm, hence the implicit contribution of each employee (as a % of his/her salary) to the CEO pay (average of 2.58%, median of 0.97%, weighted average of 0.50%).

We discussed above the value of management (CEO) from a real options perspective, which is arguably the proper methodology. Whether a given CEO is worth the pay she/he receives remains an open question. But the difference between a good CEO and a bad one for employees and other stakeholders is potentially huge.

The CEO pay debate raises two additional crucial and related questions. First, the question of inequalities in society, their determining factors, and their evolution over time. That question is discussed in the paper "Rethinking Inequality: Consumption vs. Income and Wealth" (Boyer & Panot, 2025a), where we show that the level of inequality in income and wealth have been decreasing between 1920 and 1980 but increasing between 1980 and today, while inequality in consumption, arguably the most critical form of inequality, has been declining over the whole period and in particular over the last two decades and a half.

Second, the question of the social role of inequalities in income and wealth. This question is discussed in the paper "The Social Role of Inequalities: Why Significant Inequality Levels in Income and Wealth Are Important for Our Prosperity and Collective Well Being" (Boyer & Panot, 2025b), where we show that inequalities in income and wealth are resulting from two related social needs, namely the need to ensure a proper level of savings and investments and the need to induce the proper but individually costly acquisition of new competencies, both to favor increased levels of productivity and prosperity.

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APPENDIX A: S&P 500 data (outliers appear in italics)

A	B	C	D	E	F	G	H
Company by sector (note 2)	Median employee salary (\$)	CEO total pay (\$)	Total nb. of employees	Total pay B*D (estimated) (\$)	CEO pay ratio C/B	CEO pay per employee C/D (\$)	B-Ratio: CEO pay over Total Pay C/E (%)
COMMUNICATIONS							
<i>Discovery Inc.</i>	<i>82,964</i>	<i>246,573,481</i>	<i>11,000</i>	<i>912,604,000</i>	<i>2,972</i>	<i>22,416</i>	<i>27.02</i>
Verizon Communications Inc.	122,492	20,342,871	118,400	14,503,052,800	166	172	0.14
Lumen Technologies (Centurylink)	75,984	22,654,781	36,000	2,735,424,000	298	629	0.83
AT&T Inc.	107,570	24,820,879	203,000	21,836,710,000	2	122	0.11
Fox Corporation	91,803	21,748,681	10,600	973,111,800	237	2,052	2.23
News Corp.	76,185	19,662,203	25,500	1,942,717,500	258	771	1.01
The Walt Disney Co.	50,430	32,464,293	220,000	11,094,600,000	644	148	0.29
Paramount Global (CSB Corp.)	94,580	20,035,212	22,965	2,172,029,700	212	872	0.92
T-Mobile US Inc.	72,572	22,610,659	75,000	5,442,900,000	312	301	0.42
DISH Network Corp.	58,161	2,895,882	14,500	843,334,500	50	200	0.34
Netflix Inc.	201,743	40,823,725	11,300	2,279,695,900	202	3,613	1.79
Charter Communications Inc.	60,007	41,860,263	93,700	5,622,655,900	698	447	0.74
The Interpublic Group of Cos Inc.	59,814	17,371,647	55,600	3,325,658,400	290	312	0.52
<i>Expedia Group Inc.</i>	<i>102,270</i>	<i>296,247,749</i>	<i>14,800</i>	<i>1,513,596,000</i>	<i>2,897</i>	<i>20,017</i>	<i>19.57</i>
Comcast Corp.	83,840	33,978,581	189,000	15,845,760,000	405	180	0.21
Omnicom Group Inc.	50,613	19,981,715	71,700	3,628,919,118	395	279	0.55
Booking Holdings Inc.	58,005	53,982,195	20,300	1,177,501,500	931	2,659	4.58
Alphabet Inc.	295,884	6,322,599	156,500	46,305,846,000	21	40	0.01
Meta Platforms Inc.	292,785	26,823,061	71,970	21,071,736,450	92	373	0.13
<i>Take-Two Interactive Software Inc.</i>	<i>70,096</i>	<i>142,996</i>	<i>7,799</i>	<i>546,678,704</i>	<i>2</i>	<i>18</i>	<i>0.03</i>
Electronic Arts Inc.	115,569	19,858,539	12,900	1,490,840,100	172	1,539	1.33
Match Group Inc.	106,881	25,397,675	1,880	200,936,280	238	13,509	12.64
TOTAL (19 Firms)	2,074,918	473,635,461	1,410,815	162,493,429,948	228	336	0.29
averages	109,206	24,928,182	74,253	7,521,195,848			

A	B	C	D	E	F	G	H
Company by sector (note 2)	Median employee salary (\$)	CEO total pay (\$)	Total nb. of employees	Total pay B*D (estimated) (\$)	CEO pay ratio C/B	CEO pay per employee C/D (\$)	B-Ratio: CEO pay over Total Pay C/E (%)
CONSUMER DISCRETIONARY							
<i>Amazon.com Inc.</i>	32,855	212,701,169	1,608,000	52,830,840,000	6,474	132	0.40
NVR	71,417	4,162,400	6,600	471,352,200	58	631	0.88
Las Vegas Sands Corp.	35,879	31,204,900	44,700	1,603,791,300	870	698	1.95
PulteGroup Inc.	136,630	16,149,555	6,182	844,646,660	118	2,612	1.91
Mohawk Industries Inc.	36,391	5,190,696	43,000	1,564,813,000	143	121	0.33
LKQ Corp.	38,982	9,445,636	46,000	1,793,172,000	242	205	0.53
O'Reilly Automotive Inc.	28,113	12,764,270	83,636	2,351,258,868	454	153	0.54
Hasbro Inc.	82,787	3,130,233	6,640	549,705,680	38	471	0.57
<i>Tesla Inc</i>	40,723	-	99,290	4,043,386,670	0	-	0.00
CarMax Inc.	51,674	13,689,123	32,647	1,687,001,078	265	419	0.81
BorgWarner Inc.	31,740	17,592,090	49,300	1,564,782,000	554	357	1.12
Ulta Beauty Inc.	13,403	8,539,767	43,986	589,544,358	637	194	1.45
Tractor Supply Co.	29,047	11,117,251	22,000	639,028,940	383	505	1.74
Ford Motor Co.	64,003	22,813,174	183,000	11,712,549,000	356	125	0.19
General Motors Co.	69,433	29,136,780	157,000	10,900,981,000	420	186	0.27
Advance Auto Parts Inc.	24,960	10,052,271	41,000	1,023,360,000	403	245	0.98
Whirlpool Corp.	27,128	18,751,901	69,000	1,871,832,000	691	272	1.00
Domino's Pizza Inc.	17,782	7,138,003	13,500	240,057,000	401	529	2.97
Marriott International Inc.	36,505	18,391,882	121,000	4,417,105,000	504	152	0.42
Etsy Inc.	231,338	40,584,292	2,402	555,673,876	175	16,896	7.30
Pool Corporation	61,709	5,575,384	5,500	339,399,500	90	1,014	1.64
Lowe's Cos Inc.	22,697	17,871,715	340,000	7,716,980,000	787	53	0.23
Newell Brands Inc.	33,913	11,438,798	32,000	1,085,216,000	337	357	1.05
Caesars Entertainment Inc	35,618	22,576,517	15,500	552,079,000	634	1,457	4.09
Norwegian Cruise Line Holdings Ltd.	19,319	19,668,768	3,500	67,616,500	1,018	5,620	29.09
The Home Depot Inc.	28,697	13,059,751	490,600	14,078,748,200	455	27	0.09
Hilton Worldwide Holdings Inc.	36,915	23,285,248	142,000	5,241,930,000	631	164	0.44
Best Buy Company Inc.	29,999	15,631,157	105,000	3,149,895,000	521	149	0.50
Royal Caribbean Cruises Ltd.	14,706	15,812,027	7,600	111,765,600	1,075	2,081	14.15
Wynn Resorts Ltd.	44,048	12,928,747	26,950	1,187,093,600	294	480	1.09
Bath Body and Works	10,632	17,668,627	8,800	93,561,600	1,662	2,008	18.88
Chipotle Mexican Grill Inc.	15,811	17,880,580	97,660	1,544,102,260	1,131	183	1.16
Ross Stores Inc.	10,806	15,989,635	100,000	1,080,600,000	1,480	160	1.48
VF Corp.	26,784	15,423,154	35,000	937,440,000	576	441	1.65
Yum! Brands Inc.	13,082	27,578,659	36,000	470,952,000	2,108	766	5.86
The TJX Cos Inc.	14,139	31,802,000	340,000	4,807,260,000	2,249	94	0.66
McDonald's Corp.	8,897	20,028,132	200,000	1,779,400,000	2,251	100	1.13
MGM Resorts International	34,988	13,274,524	45,000	1,574,460,000	379	295	0.84
Fortune Brands Home & Security Inc.	50,540	10,170,381	24,697	1,248,186,380	201	412	0.81

Aptiv Plc	7,402	14,744,780	155,000	1,147,310,000	1,992	95	1.29
Carnival Corp.	8,658	15,063,788	39,000	337,662,000	1,740	386	4.46
Genuine Parts Co.	41,606	11,810,704	50,000	2,080,300,000	284	236	0.57
Lennar Corp.	101,561	34,045,217	10,753	1,092,085,433	335	3,166	3.12
Starbucks Corp.	12,935	20,425,162	402,000	5,199,870,000	1,579	51	0.39
Copart Inc.	41,662	31,033,606	9,500	395,789,000	745	3,267	7.84
AutoZone Inc.	31,751	14,330,010	112,000	3,556,112,000	451	128	0.40
Tapestry Inc.	29,147	13,739,426	14,400	419,716,800	471	954	3.27
Darden Restaurants Inc.	21,931	11,891,842	178,956	3,924,684,036	542	66	0.30
NIKE Inc.	37,410	28,838,060	79,100	2,959,131,000	771	365	0.97
Ralph Lauren Corp.	26,670	18,553,058	13,500	360,045,000	696	1,374	5.15
D.R. Horton Inc.	116,088	29,996,862	13,237	1,536,656,856	258	2,266	1.95
eBay Inc.	135,528	21,685,102	10,800	1,463,702,400	160	2,008	1.48
Under Armour Inc.	10,466	15,544,913	16,600	173,735,600	1,485	936	8.95
PVH Corp.	17,839	14,714,208	32,081	572,299,696	825	459	2.57
Live Nation Entertainment Inc.	15,740	13,842,464	10,200	160,548,000	879	1,357	8.62
TOTAL (53 firms)	2,196,906	917,777,230	4,174,527	116,826,987,421	418	220	0.79
averages	41,451	17,316,552	78,765	2,204,282,782			

Company by sector (note 2)	Median employee salary (\$)	CEO total pay (\$)	Total nb. of employees	Total pay B*D (estimated) (\$)	CEO pay ratio C/B	CEO pay per employee C/D (\$)	B-Ratio: CEO pay over Total Pay C/E (%)
CONSUMER STAPLES							
The Kraft Heinz Co.	45,260	8,605,599	36,000	1,629,360,000	190	239	0.53
Molson Coors Brewing Co.	77,432	8,234,680	16,300	1,262,141,600	106	505	0.65
Kellogg Co.	44,125	10,678,337	31,000	1,367,875,000	242	344	0.78
The Coca-Cola Co.	13,894	24,883,878	79,000	1,097,626,000	1,791	315	2.27
Monster Beverage Corp.	69,417	16,707,577	3,458	240,043,986	241	4,832	6.96
Archer-Daniels-Midland Co.	81,320	23,508,841	40,739	3,312,895,480	289	577	0.71
Kimberly-Clark Corp.	42,749	12,009,162	45,000	1,923,705,000	281	267	0.62
The Hershey Co.	36,149	16,144,570	16,620	600,796,380	447	971	2.69
Mondelez International Inc.	31,024	16,128,320	79,000	2,450,896,000	520	204	0.66
The Kroger Co.	26,763	18,168,730	420,000	11,240,460,000	679	43	0.16
Colgate-Palmolive Co.	40,469	15,458,151	33,800	1,367,852,200	382	457	1.13
PepsiCompany Inc.	52,297	25,506,607	309,000	16,159,773,000	488	83	0.16
Philip Morris International Inc.	18,196	10,557,568	69,600	1,266,441,600	580	152	0.83
Walmart Inc.	25,335	25,670,673	2,300,000	58,270,500,000	1,013	11	0.04
Altria Group Inc.	142,614	12,626,972	6,000	855,684,000	89	2,104	1.48
McCormick & Company Inc.	38,004	12,718,656	14,000	532,056,000	335	908	2.39
Tyson Foods Inc.	41,967	12,014,497	142,000	5,959,314,000	286	85	0.20
Hormel Foods Corp.	50,369	9,478,102	20,000	1,007,380,000	188	474	0.94
Costco Wholesale Corp.	45,450	9,905,070	304,000	13,816,800,000	218	33	0.07
Walgreens Boots Alliance Inc.	24,530	17,287,489	325,000	7,972,250,000	705	53	0.22
Sysco Corp.	83,737	13,656,506	71,000	5,945,357,530	163	192	0.23
Keurig Dr Pepper Inc.	55,207	7,772,521	27,500	1,518,192,500	141	283	0.51
The Clorox Co.	63,866	8,534,808	9,000	574,794,000	134	948	1.48
Campbell Soup Co.	64,277	10,277,065	14,700	944,871,900	160	699	1.09
The Procter & Gamble Co.	65,918	17,716,015	106,000	6,987,308,000	269	167	0.25
General Mills Inc.	62,454	12,266,195	32,500	2,029,755,000	196	377	0.60
Conagra Brands Inc.	57,855	11,947,054	18,000	1,041,390,000	206	664	1.15
Lamb Weston Holdings Inc.	51,398	7,858,113	8,000	411,184,000	153	982	1.91
Brown-Forman Corp.	61,040	8,364,936	5,200	317,408,000	137	1,609	2.64
Constellation Brands Inc.	35,606	12,040,281	10,000	356,060,000	338	1,204	3.38
Dollar Tree Inc.	13,490	10,249,698	61,886	834,842,140	760	166	1.23
Church & Dwight Company Inc.	73,466	8,889,526	5,100	374,676,600	121	1,743	2.37
Target Corp.	25,501	19,758,766	450,000	11,475,450,000	775	44	0.17
Dollar General Corp.	17,773	16,618,873	163,000	2,896,999,000	935	102	0.57
The Estee Lauder Cos Inc.	29,236	25,480,056	63,000	1,841,868,000	872	404	1.38
The JM Smucker Co.	86,742	8,511,639	6,900	598,519,800	98	1,234	1.42
TOTAL (36 firms)	1,794,930	506,235,531	5,342,303	170,482,526,716	282	95	0.30
averages	49,859	14,062,098	148,397	4,735,625,742			

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Company by sector (note 2)	Median employee salary (\$)	CEO total pay (\$)	Total nb. of employees	Total pay B*D (estimated) (\$)	CEO pay ratio C/B	CEO pay per employee C/D (\$)	B-Ratio: CEO pay over Total Pay C/E (%)
ENERGY							
Kinder Morgan Inc.	115,388	18,000,259	10,529	1,214,920,252	156	1,710	1.48
Coterra Energy Inc.	91,440	11,061,939	936	85,587,840	121	11,818	12.92
The Williams Cos Inc.	167,343	13,759,533	4,783	800,401,569	82	2,877	1.72
Targa Resources Corp.	124,880	14,691,940	2,430	303,458,400	118	6,046	4.84
Pioneer Natural Resources Co.	166,480	16,002,825	1,932	321,639,360	96	8,283	4.98
Apache Corp.	174,903	15,040,707	3,163	553,218,189	86	4,755	2.72
Devon Energy Corp.	179,900	11,914,547	1,600	287,840,000	66	7,447	4.14
Exxon Mobil Corp.	189,082	23,572,488	63,000	11,912,166,000	125	374	0.20
Valero Energy Corp.	198,219	22,684,706	9,813	1,945,123,047	114	2,312	1.17
ConocoPhillips	179,428	23,886,640	9,900	1,776,337,200	133	2,413	1.34
EQT Corporation	122,460	16,919,763	693	84,864,780	138	24,415	19.94
Chevron Corp.	183,531	22,610,285	42,595	7,817,502,945	123	531	0.29
Baker Hughes a GE Co.	69,701	15,646,452	54,000	3,763,854,000	224	290	0.42
Schlumberger Nv	66,138	16,795,502	92,000	6,084,696,000	254	183	0.28
Halliburton Co.	81,076	23,591,982	40,000	3,243,040,000	291	590	0.73
Marathon Petroleum Corp.	148,850	21,185,206	17,700	2,634,645,000	142	1,197	0.80
ONEOK Inc.	119,568	9,287,113	2,847	340,410,096	78	3,262	2.73
Phillips 66	161,584	20,953,206	14,215	2,296,916,560	130	1,474	0.91
Occidental Petroleum Corp.	157,013	11,068,539	11,664	1,831,399,632	70	949	0.60
EOG Resources Inc.	185,838	9,752,887	2,803	520,903,914	52	3,479	1.87
Diamondback Energy Inc.	108,354	13,839,995	870	94,267,980	128	15,908	14.68
Hess Corp.	197,547	12 408 198	1,545	305,210,115	63	8,031	4.07
Marathon Oil Corp.	128,010	12,997,292	1,672	214,032,720	102	7,774	6.07
TOTAL (23 firms)	3,316,733	377,672,004	390,690	48,432,435,599	114	967	0.78
averages	144,206	16,420,522	16,987	2,105,758,070			

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FINANCIALS							
<i>Berkshire Hathaway Inc.</i>	58,881	373,204	371,653	21,883,300,293	6	1	0.00
SVB Financial Group	125,638	9,922,132	6,567	825,064,746	79	1,511	1.20
Cincinnati Financial Corp.	105,458	6,490,767	5,166	544,796,028	62	1,256	1.19
Truist Financial Corporation	95,659	10,395,426	54,982	5,259,523,138	109	189	0.20
Loews Corp.	53,781	6,119,523	10,340	556,095,540	114	592	1.10
VICI Properties Inc	28,107	7,662,894	152	4,272,264	273	50,414	179.36
CME Group Inc.	153,565	22,924,737	3,480	534,406,200	149	6,588	4.29
Intercontinental Exchange Inc.	125,579	14,788,386	8,858	1,112,378,782	118	1,669	1.33
KeyCorp.	73,571	8,653,484	16,974	1,248,794,154	118	510	0.69
Nasdaq Inc.	98,946	19,965,893	6,590	652,054,140	202	3,030	3.06
The Progressive Corp.	65,874	14,462,961	49,000	3,227,826,000	220	295	0.45
Invesco Ltd.	187,854	12,897,752	8,513	1,599,201,102	69	1,515	0.81
The Charles Schwab Corp.	109,269	21,938,404	33,400	3,649,584,600	201	657	0.60
Arch Capital Group Ltd.	129,028	9,336,013	5,200	670,945,600	72	1,795	1.39
The Travelers Cos Inc.	109,586	19,853,697	30,800	3,375,248,800	181	645	0.59
Invitation Homes Inc.	63,730	9,710,445	1,240	79,025,200	152	7,831	12.29
The Goldman Sachs Group Inc.	165,828	39,545,072	43,900	7,279,849,200	238	901	0.54
Northern Trust Corp.	72,300	10,449,233	21,100	1,525,530,000	145	495	0.68
Morgan Stanley	137,069	34,941,635	74,814	10,254,680,166	255	467	0.34
BlackRock Inc.	164,492	32,587,335	18,400	3,026,652,800	198	1,771	1.08
MetLife Inc.	76,392	16,621,373	46,500	3,552,228,000	218	357	0.47
US Bancorp	85,166	19,166,276	68,796	5,859,080,136	225	279	0.33
Discover Financial Services	63,770	12,087,218	17,600	1,122,352,000	190	687	1.08
Aon Plc	81,645	19,868,384	48,497	3,959,537,565	243	410	0.50
Assurant Inc.	44,558	11,504,780	14,100	628,267,800	258	816	1.83
Ameriprise Financial Inc.	129,010	21,229,464	12,000	1,548,120,000	165	1,769	1.37
The Allstate Corp.	62,235	19,066,920	54,300	3,379,360,500	306	351	0.56
State Street Corp.	61,463	14,113,660	38,784	2,383,780,992	230	364	0.59
Bank of America Corp.	102,497	23,729,169	208,248	21,344,795,256	232	114	0.11
Capital One Financial Corp.	81,029	20,457,553	50,800	4,116,273,200	252	403	0.50
Prudential Financial Inc.	114,931	19,799,737	40,916	4,702,516,796	172	484	0.42
Marsh & McLennan Cos Inc.	67,143	21,519,703	83,000	5,572,869,000	321	259	0.39
Wells Fargo & Co.	73,578	21,350,906	249,435	18,352,928,430	290	86	0.12
Synchrony Financial	50,316	8,880,347	18,000	905,688,000	176	493	0.98
Chubb Ltd.	71,894	23,181,184	31,000	2,228,714,000	322	748	1.04
American Express Co.	67,460	25,513,922	64,000	4,317,440,000	378	399	0.59
The Bank of New York Mellon Corp.	76,123	14,128,042	49,100	3,737,639,300	186	288	0.38
JPMorgan Chase & Co.	92,112	84,428,145	271,025	24,964,654,800	917	312	0.34

Citigroup Inc.	55,285	20,541,324	223,000	12,328,555,000	372	92	0.17
American International Group Inc.	71,936	21,905,220	36,600	2,632,857,600	305	599	0.83
Vornado Realty Trust	62,287	9,763,351	2,710	168,797,770	157	3,603	5.78
Boston Properties Inc.	123,647	12,894,537	743	91,869,721	104	17,355	14.04
SBA Communications Corp.	96,104	9,995,179	1,596	153,381,984	104	6,263	6.52
Host Hotels & Resorts Inc.	206,292	11,520,730	160	33,006,720	56	72,005	34.90
Weyerhaeuser Co.	76,688	12,715,531	9 214	706,603,232	166	1,380	1.80
CBRE Group Inc.	57,349	13,908,085	105,000	6,021,645,000	243	132	0.23
The Hartford Financial Services Group Inc.	106,940	15,824,348	18,500	1,978,390,000	148	855	0.80
Cboe Global Markets Inc.	165,355	10,646,558	1,196	197,764,580	64	8,902	5.38
Willis Towers Watson Plc	66,942	20,337,292	44,000	2,945,448,000	304	462	0.69
Ventas Inc.	111,261	14,263,728	434	48,287,274	128	32,866	29.54
Digital Realty Trust Inc.	122,276	17,139,601	1,393	170,330,468	140	12,304	10.06
Crown Castle International Corp.	128,795	14,553,510	5,000	643,975,000	113	2,911	2.26
Simon Property Group Inc.	64,069	10,475,192	3,300	211,427,700	163	3,174	4.95
AvalonBay Communities Inc.	79,313	14,371,460	2,927	232,149,151	181	4,910	6.19
UDR Inc.	76,519	14,228,333	1,219	93,276,661	186	11,672	15.25
Essex Property Trust Inc.	85,350	7,183,068	1,757	149,959,950	84	4,088	4.79
Aflac Inc.	65,458	15,728,233	12,447	814,755,726	240	1,264	1.93
Prologis Inc.	114,183	24,901,490	2,053	234,417,699	218	12,129	10.62
Welltower Inc.	100,206	12,753,710	464	46,495,584	127	27,486	27.43
Arthur J Gallagher & Co.	64,135	13,882,255	39,000	2,501,265,000	216	356	0.56
Federal Realty Investment Trust	125,770	7,520,917	310	38,988,700	60	24,261	19.29
Regency Centers Corp.	111,237	7,026,315	432	48,054,384	63	16,265	14.62
Kimco Realty Corp.	108,000	10,488,138	606	65,448,000	97	17,307	16.03
W. R. Berkley Corporation	102,973	14,147,305	7,681	790,935,613	137	1,842	1.79
Public Storage	28,787	10,358,153	5,800	166,964,600	360	1,786	6.20
Realty Income Corp.	136,304	12,861,011	371	50,568,784	94	34,666	25.43
First Republic Bank	162,300	7,335,897	6,295	1,021,678,500	45	1,165	0.72
Brown & Brown Inc.	91,957	9,201,035	12,023	1,105,599,011	100	765	0.83
Healthpeak Properties Inc.	177,521	11,713,883	218	38,699,578	66	53,733	30.27
The PNC Financial Services Group Inc.	78,333	17,506,270	59,426	4,655,016,858	223	295	0.38
Comerica Inc.	102,385	7,696,094	7,442	761,949,170	75	1,034	1.01
Citizens Financial Group Inc.	82,418	12,430,076	17,463	1,439,265,534	151	712	0.86
Regions Financial Corp.	79,540	13,444,577	19,626	1,561,052,040	169	685	0.86
Huntington Bancshares Inc.	58,430	9,619,178	20,309	1,186,654,870	165	474	0.81
M&T Bank Corp.	68,270	6,868,174	17,115	1,168,441,050	101	401	0.59
Camden Property Trust	58,767	4,285,423	1,700	99,903,900	73	2,521	4.29
Fifth Third Bancorp	66,720	10,531,649	19,112	1,275,152,640	158	551	0.83
Raymond James Financial Inc.	106,782	13,901,046	13,347	1,425,219,354	130	1,042	0.98
Franklin Resources Inc.	126,915	15,734,999	9,800	1,243,767,000	124	1,606	1.27
T Rowe Price Group Inc.	138,173	17,127,330	7,529	1,040,304,517	124	2,275	1.65

American Tower Corp.	37,616	16,114,574	6,378	239,914,848	428	2,527	6.72
Alexandria Real Estate Equities Inc.	176,113	8,320,228	559	98,447,167	47	14,884	8.45
Equinix Inc.	122,075	23,248,193	10,944	1,335,988,800	190	2,124	1.74
Equity Residential	62,996	8,490,527	2,400	151,190,400	135	3,538	5.62
Extra Space Storage Inc.	43,361	7,315,982	4,309	186,842,549	169	1,698	3.92
Iron Mountain Inc.	41,600	17,046,118	25,000	1,040,000,000	410	682	1.64
Lincoln National Corp.	84,240	16,760,924	10,848	913,835,520	199	1,545	1.83
Mid-America Apartment Communities Inc.	52,777	7,667,655	2,429	128,195,333	145	3,157	5.98
Globe Life Inc.	56,843	8,353,754	3,222	183,148,146	147	2,593	4.56
Principal Financial Group Inc.	75,348	17,566,163	18,600	1,401,472,800	233	944	1.25
Everest Re Group Ltd.	151,276	8,866,126	1,947	294,534,372	59	4,554	3.01
Signature Bank	115,807	8,975,851	1,854	214,706,178	78	4,841	4.18
Zions Bancorp NA	76,160	4,656,113	9,685	737,609,600	61	481	0.63
TOTAL (92 firms)	8,674,840	1,402,004,985	2,603,070	216,616,383,871	162	539	0.65
averages	94,292	15,239,185	28,294	2,354,525,912			

A	B	C	D	E	F	G	H
Company by sector (note 2)	Median employee salary (\$)	CEO total pay (\$)	Total nb. of employees	Total pay B*D (estimated) (\$)	CEO pay ratio C/B	CEO pay per employee C/D (\$)	B-Ratio: CEO pay over Total Pay C/E (%)
HEALTH CARE							
Elevance Health Inc.	51,005	19,348,241	98,200	5,008,691,000	379	197	0.39
Vertex Pharmaceuticals Inc.	234,107	15,198,856	3,900	913,017,300	65	3,897	1.66
Illumina Inc.	115,398	14,333,634	9,100	1,050,121,800	124	1,575	1.36
Zimmer Biomet Holdings Inc.	63,981	14,981,058	19,500	1,247,629,500	234	768	1.20
Biogen Inc.	163,551	17,689,665	9,610	1,571,725,110	108	1,841	1.13
Gilead Sciences Inc.	211,687	19,229,466	14,400	3,048,292,800	91	1,335	0.63
Waters Corp.	74,470	8,653,559	7,800	580,866,000	116	1,109	1.49
Eli Lilly & Co.	97,130	21,509,985	35,000	3,399,550,000	221	615	0.63
IDEXX Laboratories Inc.	67,638	9,065,021	10,350	700,053,300	134	876	1.29
Amgen Inc.	130,589	21,721,154	24,200	3,160,253,800	166	898	0.69
Moderna Inc.	133,074	18,155,739	2,700	359,299,800	136	6,724	5.05
Zoetis Inc.	81,497	13,098,491	12,100	986,113,700	161	1,083	1.33
Dentsply Sirona Inc.	56,466	9,251,884	15,000	846,990,000	164	617	1.09
Bristol-Myers Squibb Co.	148,649	19,784,806	32,200	4,786,497,800	133	614	0.41
Mettler-Toledo International Inc.	51,436	11,811,322	15,600	802,401,600	230	757	1.47
PerkinElmer Inc.	52,960	9,661,006	16,700	884,432,000	182	579	1.09
Stryker Corp.	76,715	16,359,898	46,000	3,528,890,000	213	356	0.46
Merck & Company Inc.	102,803	13,722,121	68,000	6,990,604,000	133	202	0.20
Danaher Corp.	66,203	17,152,267	78,000	5,163,834,000	259	220	0.33
Abbott Laboratories	97,952	24,914,886	113,000	11,068,576,000	254	220	0.23
DaVita Inc.	67,535	3,298,439	69,000	4,659,915,000	49	48	0.07
DexCom Inc.	63,500	11,985,324	6,300	400,050,000	189	1,902	3.00
Cigna Corp.	66,917	19,872,266	73,700	4,931,782,900	297	270	0.40
Laboratory Corp of America Holdings	57,614	20,551,605	75,500	4,349,857,000	357	272	0.47
UnitedHealth Group Inc.	61,379	18,433,143	350,000	21,482,650,000	300	53	0.09
HCA Healthcare Inc.	56,044	20,635,260	284,000	15,916,496,000	368	73	0.13
ResMed Inc.	64,956	11,659,210	8,160	530,040,960	179	1,429	2.20
Teleflex Inc.	34,907	8,673,634	14,000	488,698,000	248	620	1.77
Thermo Fisher Scientific Inc.	83,666	21,234,358	130,000	10,876,580,000	254	163	0.20
Humana Inc.	64,797	16,528,036	95,500	6,188,113,500	255	173	0.27
Molina Healthcare Inc.	71,916	19,961,698	14,000	1,006,824,000	278	1,426	1.98
Baxter International Inc.	46,351	15,634,734	60,000	2,781,060,000	337	261	0.56
Centene Corp.	71,217	20,637,990	72,500	5,163,232,500	290	285	0.40
IQVIA Holdings Inc.	139,803	28,615,851	79,000	11,044,437,000	205	362	0.26
Johnson & Johnson	90,000	26,741,959	144,300	12,987,000,000	297	185	0.21
Universal Health Services Inc.	45,454	14,020,942	89,400	4,063,587,600	308	157	0.35
Align Technology Inc.	13,011	21,591,400	22,540	293,267,940	1,659	958	7.36
Quest Diagnostics Inc.	67,206	14,557,818	49,000	3,293,094,000	217	297	0.44

Edwards Lifesciences Corp.	73,036	13,613,305	15,700	1,146,665,200	186	867	1.19
West Pharmaceutical Services Inc.	57,357	9,472,757	10,065	577,298,205	165	941	1.64
Incyte Corp.	248,810	14,444,265	2,094	521,008,140	58	6,898	2.77
Pfizer Inc.	92,986	24,353,219	79,000	7,345,894,000	262	308	0.33
Boston Scientific Corp.	68,891	16,064,039	41,000	2,824,531,000	233	392	0.57
AbbVie Inc.	149,662	23,912,154	50,000	7,483,100,000	160	478	0.32
Intuitive Surgical Inc.	140,163	8,059,409	9,793	1,372,616,259	58	823	0.59
STERIS Plc	67,300	5,903,168	16,422	1,105,200,600	88	359	0.53
Agilent Technologies Inc.	82,890	15,967,631	17,000	1,409,130,000	193	939	1.13
The Cooper Cos Inc.	36,105	10,994,906	14,000	505,470,000	305	785	2.18
Hologic Inc.	89,791	14,748,400	6,944	623,508,704	164	2,124	2.37
AmerisourceBergen Corp.	65,076	14,873,815	39,000	2,537,964,000	229	381	0.59
Bio-Techne Corporation	84,964	15,370,548	3,000	254,892,000	181	5,124	6.03
Becton Dickinson and Co.	37,748	16,711,230	77,000	2,906,596,000	443	217	0.57
Charles River Laboratories International Inc.	51,848	13,705,581	20,000	1,036,960,000	264	685	1.32
Cardinal Health Inc.	63,906	13,463,557	46,500	2,971,629,000	211	290	0.45
Medtronic Plc	78,244	16,849,633	95,000	7,433,180,000	215	177	0.23
ABIOMED Inc.	131,893	12,665,992	2,003	264,181,679	96	6,324	4.79
McKesson Corp.	62,610	18,152,082	75,000	4,695,750,000	290	242	0.39
Henry Schein Inc.	72,625	10,786,180	21,600	1,568,700,000	149	499	0.69
Bio-Rad Laboratories Inc.	78,820	8,695,925	7,900	622,678,000	110	1,10	1.40
Catalent Inc	63,242	12,407,517	17,300	1,094,086,600	196	717	1.13
Viatis Inc.	36,865	14,669,592	37,350	1,376,907,750	398	393	1.07
CVS Health Corp.	45,010	20,388,412	300,000	13,503,000,000	453	68	0.15
Regeneron Pharmaceuticals Inc.	149,250	6,470,514	10,368	1,547,424,000	43	624	0.42
TOTAL (63 firms)	5,372,676	983,020,557	3,282,299	233,282,897,047	183	299	0.42
averages	85,281	15,603,501	52,100	3,702,903,128			

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Company by sector (note 2)	Median employee salary (\$)	CEO total pay (\$)	Total nb. of employees	Total pay B*D (estimated) (\$)	CEO pay ratio C/B	CEO pay per employee C/D (\$)	B-Ratio: CEO pay over Total Pay C/E (%)
INDUSTRIALS							
CSX Corp.	107,772	20,006,806	20,919	2,254,482,468	186	956	0.89
IDEX Corp.	61,933	6,719,772	7,536	466,727,088	109	892	1.44
Trane Technologies plc	63,916	12,888,518	37,000	2,364,892,000	202	348	0.54
Rollins Inc.	44,813	8,393,601	16,482	738,607,866	187	509	1.14
Fastenal Co.	40,843	2,423,614	18,370	750,285,910	59	132	0.32
Southwest Airlines Co.	84,872	5,819,756	55,100	4,676,447,200	69	106	0.12
WW Grainger Inc.	65,633	9,015,594	24,200	1,588,318,600	137	373	0.57
Carrier Global Corp.	66,377	14,892,815	56,000	3,717,112,000	224	266	0.40
Waste Management Inc.	80,744	13,057,363	48,500	3,916,084,000	162	269	0.33
Xylem Inc.	55,094	10,441,670	17,300	953,126,200	190	604	1.10
General Electric Co.	55,064	22,663,449	164,000	9,030,496,000	412	138	0.25
Textron Inc.	102,647	18,576,014	33,000	3,387,351,000	181	563	0.55
Raytheon Technologies	112,078	23,316,063	174,000	19,501,572,000	208	134	0.12
Allegion Plc	65,338	7,688,243	11,000	718,718,000	118	699	1.07
Northrop Grumman Corp.	119,721	19,876,767	88,000	10,535,448,000	166	226	0.19
Republic Services Inc.	68,217	7,925,408	35,000	2,387,595,000	116	226	0.33
American Airlines Group Inc.	62,765	7,238,011	123,400	7,745,201,000	115	59	0.09
Snap-on Inc.	59,712	9,872,946	12,800	764,313,600	165	771	1.29
Fortive Corp.	61,746	16,598,719	18,000	1,111,428,000	269	922	1.49
General Dynamics Corp.	92,585	23,553,862	103,100	9,545,513,500	254	228	0.25
Otis Worldwide Corporation	49,941	13,770,306	69,082	3,450,024,162	276	199	0.40
Dover Corp.	48,794	14,085,860	25,000	1,219,850,000	289	563	1.15
Pentair Plc	57,343	9,429,546	11,250	645,108,750	164	838	1.46
United Parcel Service Inc.	50,379	27,620,893	534,000	26,902,386,000	548	52	0.10
Cummins Inc.	53,864	15,645,919	59,900	3,226,453,600	290	261	0.48
Masco Corp.	50,305	13,410,774	20,000	1,006,104,200	267	671	1.33
3M Co.	71,821	18,200,584	96,163	6,906,522,823	253	189	0.26
Honeywell International Inc.	75,529	26,100,120	99,000	7,477,371,000	346	264	0.35
Ingersoll-Rand Plc	51,757	10,613,486	16,000	828,112,000	205	663	1.28
Stanley Black & Decker Inc.	56,016	13,167,893	71,300	3,993,940,800	235	185	0.33
Illinois Tool Works Inc.	61,011	20,787,622	45,000	2,745,495,000	341	462	0.76
Old Dominion Freight Line Inc.	72,726	10,577,833	23,633	1,718,733,558	145	448	0.62
Robert Half International Inc.	28,191	8,971,474	14,600	411,588,600	318	614	2.18
Union Pacific Corp.	89,878	14,523,819	32,124	2,887,240,872	162	452	0.50
Norfolk Southern Corp.	99,945	14,016,942	18,370	1,835,989,650	140	763	0.76
Westinghouse Air Brake Technologies Corporation	45,266	11,027,238	25,000	1,131,650,000	244	441	0.97
United Rentals	83,417	12,716,100	20,400	1,701,706,800	152	623	0.75

PACCAR Inc.	76,395	11,935,763	28,300	2,161,978,500	156	422	0.55
Huntington Ingalls Industries Inc.	69,551	7,714,066	44,000	3,060,244,000	111	175	0.25
Eaton Corp Plc	56,287	19,367,607	86,000	4,840,682,000	344	225	0.40
Lockheed Martin Corp.	110,113	18,111,211	114,000	12,552,882,000	164	159	0.14
The Boeing Co.	124,844	21,093,605	142,000	17,727,848,000	169	149	0.12
AMETEK Inc.	68,238	12,919,431	18,500	1,262,403,000	189	698	1.02
Keysight Technologies Inc.	77,082	18,566,410	14,300	1,102,272,600	241	1,298	1.68
TransDigm Group Inc.	58,837	21,484,504	14,400	847,252,800	365	1,492	2.54
Johnson Controls International plc	43,640	15,667,017	100,000	4,364,000,000	359	157	0.36
Deere & Co.	82,240	19,912,826	75,550	6,213,232,000	242	264	0.32
TE Connectivity Ltd.	24,975	14,715,856	85,000	2,122,875,000	589	173	0.69
Emerson Electric Co.	58,101	15,178,106	85,500	4,967,635,500	261	178	0.31
Rockwell Automation Inc.	61,470	10,987,704	26,000	1,598,220,000	179	423	0.69
Jacobs Engineering Group Inc.	91,393	14,615,521	55,000	5,026,615,000	160	266	0.29
L3Harris Technologies Inc.	110,846	15,697,749	47,000	5,209,762,000	142	334	0.30
Parker-Hannifin Corp.	56,416	18,448,169	55,090	3,107,957,440	327	335	0.59
A.O. Smith Corp.	35,561	6,897,982	13,700	487,185,700	194	504	1.42
CH Robinson Worldwide Inc.	57,391	10,233,276	16,877	968,587,907	178	606	1.06
JB Hunt Transport Services Inc.	78,560	8,801,881	33,045	2,596,015,200	112	266	0.34
Caterpillar Inc.	51,102	24,298,032	107,700	5,503,685,400	475	226	0.44
Quanta Services Inc.	106,665	10,967,217	43,700	4,661,260,500	103	251	0.24
Nordson Corporation	65,527	10,308,750	6,813	446,435,451	157	1,513	2.31
Generac Holdings Inc.	65,543	7,519,813	6,546	429,044,478	115	1,149	1.75
Howmet Aerospace Inc.	58,921	17,189,000	19,900	1,172,527,900	292	864	1.47
Trimble Inc.	71,625	13,956,821	11,931	854,557,875	195	1,170	1.63
Alaska Air Group Inc.	74,911	5,130,162	22,833	1,710,442,863	68	225	0.30
Cintas Corp.	53,321	7,777,100	43,000	2,292,803,000	146	181	0.34
Delta Air Lines Inc.	70,240	12,360,420	83,000	5,829,920,000	176	149	0.21
United Airlines Holdings	78,245	9,845,064	84,100	6,580,404,500	126	117	0.15
Expeditors International of Washington Inc.	68,690	13,026,304	19,588	1,345,499,720	190	665	0.97
Amphenol Corp.	55,513	13,092,697	90,000	4,996,170,000	236	145	0.26
FedEx Corp.	39,177	10,596,150	191,000	7,482,807,000	270	55	0.14
TOTAL (69 firms)	4,719,473	954,051,614	4,028,902	277,765,204,581	202	237	0.34
averages	68,398	13,826,835	58,390	4,025,582,675			

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MATERIALS							
CF Industries Holdings Inc.	128,415	11,685,670	3,000	385,245,000	91	3,895	3.03
Vulcan Materials Co.	80,122	10,774,795	11,437	916,355,314	134	942	1.18
International Flavors & Fragrances Inc.	66,105	9,767,380	24,000	1,586,520,000	148	407	0.62
Martin Marietta Materials Inc.	90,423	14,939,587	10,000	904,230,000	165	1,494	1.65
Nucor Corp.	142,635	11,618,019	28,800	4,107,888,000	81	403	0.28
Packaging Corp of America	78,062	12,157,313	15,200	1,186,542,400	156	800	1.02
LyondellBasell Industries NV	106,258	19,011,033	19,100	2,029,527,800	179	995	0.94
Eastman Chemical Co.	92,880	17,798,861	14,000	1,300,320,000	192	1,271	1.37
DuPont de Nemours Inc.	108,955	15,106,986	28,000	3,050,740,000	139	540	0.50
Sealed Air Corp.	54,633	9,674,692	16,500	901,444,500	177	586	1.07
International Paper Co.	88,581	15,228,707	38,200	3,383,794,200	172	399	0.45
Ecolab Inc.	52,339	8,365,889	47,000	2,459,933,000	160	178	0.34
FMC Corp.	54,297	8,489,671	6,400	347,500,800	156	1,327	2.44
Freeport-McMoRan Inc.	77,036	19,111,894	24,700	1,902,789,200	248	774	1.00
The Sherwin-Williams Co.	43,321	15,843,760	61,626	2,669,699,946	366	257	0.59
PPG Industries Inc.	37,282	13,418,214	49,300	1,838,002,600	360	272	0.73
Avery Dennison Corp.	15,256	12,433,721	36,000	549,216,000	815	345	2.26
Albemarle Corp.	70,574	9,040,753	6,000	423,444,000	128	1,507	2.14
Ball Corp.	131,452	13,924,380	24,300	3,194,283,600	106	573	0.44
Celanese Corp.	90,427	12,570,992	8,529	771,251,883	139	1,474	1.63
Air Products & Chemicals Inc.	66,930	18,483,105	21,900	1,465,767,000	276	844	1.26
Linde Plc	40,659	31,426,032	72,327	2,940,743,493	773	434	1.07
The Mosaic Co.	24,013	12,297,011	12,525	300,762,825	512	982	4.09
Newmont Goldcorp Corp.	56,621	12 667 105	14,400	815,342,400	224	880	1.55
Amcor PLC	41,332	9,872,758	41,407	1,711,434,124	239	238	0.58
Dow Inc.	95,607	24,858,892	35,700	3,413,169,900	260	696	0.73
Corteva	85,572	16,864,428	21,000	1,797,012,000	197	803	0.94
Westrock Co.	68,878	11,576,270	50,500	3,478,339,000	168	229	0.33
TOTAL (28 firms)	2,088,665	399,007,918	741,851	49,831,298,985	191	538	0.80
averages	74,595	14,250,283	26,495	1,779,689,249			

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Company by sector (note 2)	Median employee salary (\$)	CEO total pay (\$)	Total nb. of employees	Total pay B*D (estimated) (\$)	CEO pay ratio C/B	CEO pay per employee C/D (\$)	B-Ratio: CEO pay over Total Pay C/E (%)
TECHNOLOGY							
<i>ServiceNow</i>	233,859	165,802,037	16,881	3,947,773,779	709	9,822	4.20
CDW	103,536	8,943,903	13,900	1,439,150,400	86	643	0.62
Leidos Holdings	95,935	12,876,007	43,000	4,125,205,000	134	299	0.31
Salesforce.com Inc.	181,612	28,602,112	73,541	13,355,928,092	157	389	0.21
Fortinet Inc.	202,875	14,203,211	10,195	2,068,310,625	70	1,393	0.69
Arista Networks Inc.	190,816	15,993,632	2,993	571,112,288	84	5,344	2.80
VeriSign Inc.	201,444	10,118,313	908	182,911,152	50	11,144	5.53
NXP Semiconductors NV	50,138	20,911,892	31,000	1,554,278,000	417	675	1.35
Enphase Energy Inc.	67,267	19,019,162	1,761	118,457,187	283	10,800	16.06
Cadence Design Systems Inc.	109,304	10,577,641	9,300	1,016,527,200	97	1,137	1.04
Akamai Technologies Inc.	112,018	11,951,574	8,700	974,556,600	107	1,374	1.23
NVIDIA Corp.	217,542	23,737,661	22,473	4,888,821,366	109	1,056	0.49
Autodesk Inc.	137,042	22,095,521	12,600	1,726,729,200	161	1,754	1.28
Advanced Micro Devices Inc.	128,263	29,498,107	15,500	1,988,076,500	230	1,903	1.48
Fiserv Inc.	70,276	20,385,208	40,000	2,811,040,000	290	510	0.73
Mastercard Inc.	128,154	16,120,055	24,000	3,075,696,000	126	672	0.52
Global Payments Inc.	56,202	23,318,393	24,000	1,348,848,000	415	972	1.73
Texas Instruments Inc.	69,407	19,195,411	31,000	2,151,617,000	277	619	0.89
PayPal Holdings Inc.	83,905	32,070,353	30,900	2,592,664,500	382	1,038	1.24
<i>Activision Blizzard Inc.</i>	<i>117,207</i>	<i>826,549</i>	<i>9,800</i>	<i>1,148,628,600</i>	<i>7</i>	<i>84</i>	<i>0.07</i>
International Business Machines Corp.	67,926	17,550,959	282,100	19,161,924,600	258	62	0.09
Corning Inc.	40,760	20,766,032	61,200	2,494,512,000	509	339	0.83
Cognizant Technology Solutions Corp.	34,225	19,687,285	330,660	11,316,838,500	575	60	0.17
Fidelity National Information Services Inc.	64,135	25,023,771	65,000	4,168,775,000	390	385	0.60
FleetCor Technologies Inc.	41,265	57,923,473	9,700	400,270,500	1,404	5,971	14.47
ANSYS Inc.	118,588	18,260,634	5,100	604,798,800	154	3,581	3.02
<i>Intel Corp.</i>	<i>104,400</i>	<i>178,590,400</i>	<i>121,100</i>	<i>12,642,840,000</i>	<i>1,711</i>	<i>1,475</i>	<i>1.41</i>
Juniper Networks Inc.	132,117	11,870,290	10,191	1,346,404,347	90	1,165	0.88
Motorola Solutions Inc.	82,965	19,980,639	18,700	1,551,445,500	241	1,068	1.29
MSCI Inc	58,415	10,338,312	4,303	251,359,745	177	2,403	4.11
Adobe Inc.	165,733	36,128,725	25,988	4,307,069,204	218	1,390	0.84
HP Inc.	67,667	20,733,806	58,000	3,924,686,000	306	357	0.53
Broadcom Inc.	247,541	60,703,627	20,000	4,950,82, 000	245	3,035	1.23
Synopsys Inc.	98,215	9,976,485	19,000	1,866,085,000	102	525	0.53
Hewlett Packard Enterprise Co.	65,944	19,052,415	60,200	3,969,828,800	289	316	0.48
Skyworks Solutions Inc.	17,409	16,150,421	11,150	194,110,350	928	1,448	8.32
Analog Devices Inc.	46,141	30,824,323	24,450	1,128,147,450	668	1,261	2.73
F5 Networks Inc.	206,330	11,469,726	7,089	1,462,673,370	56	1,618	0.78
QUALCOMM Inc.	98,200	20,638,924	51,000	5,008,200,000	210	405	0.41

Applied Materials Inc.	109,304	35,265,559	33,300	3,639,823,200	323	1,059	0.97
Apple Inc.	84,493	98,734,394	164,000	13,856,852,000	1,169	602	0.71
Accenture Plc	51,635	33,701,108	721,000	37,228,835,000	653	47	0.09
Micron Technology Inc.	48,310	28,840,809	48,000	2,318,880,000	597	601	1.24
Intuit Inc.	203,814	27,174,857	17,300	3,525,982,200	133	1,571	0.77
Cisco Systems Inc.	117,400	29,283,936	83,300	9,779,420,000	249	352	0.30
Microsoft Corp.	190,302	54,946,310	221,000	42,056,742,000	289	249	0.13
Western Digital Corp.	9,644	32,137,338	65,000	626,860,000	3,332	494	5.13
KLA-Tencor Corp.	105,278	20,568,625	14,000	1,473,892,000	195	1,469	1.40
<i>Oracle Corp.</i>	<i>75,043</i>	<i>138,192,032</i>	<i>143,000</i>	<i>10,731,149,000</i>	<i>1,842</i>	<i>966</i>	<i>1.29</i>
Lam Research Corp.	119,322	16,941,156	17,700	2,111,999,400	142	957	0.80
Broadridge Financial Solutions Inc.	64,515	10,068,228	14,300	922,564,500	156	704	1.09
Automatic Data Processing Inc.	62,238	20,827,092	60,000	3,734,280,000	335	347	0.56
Seagate Technology Plc	10,763	13,210,318	40,142	432,048,346	1,227	329	3.06
Paychex Inc.	56,960	11,025,026	16,000	911,360,000	194	689	1.21
NetApp Inc.	206,477	18,883,551	12,000	2,477,724,000	91	1,574	0.76
Microchip Technology Inc.	46,326	12,759,667	21,000	972,846,000	275	608	1.31
DXC Technology Co.	44,156	28,716,680	134,000	5,916,904,000	650	214	0.49
Qorvo Inc.	57,510	10,072,684	8,900	511,839,000	175	1,132	1.97
Gartner Inc.	118,762	14,096,168	16,600	1,971,449,200	119	849	0.72
ON Semiconductor Corporation	17,475	12,825,562	31,000	541,725,000	734	414	2.37
Teledyne Technologies Incorporated	64,003	6,567,058	14,500	928,043,500	103	453	0.71
EPAM Systems Inc.	27,200	5,921,524	58,800	1,599,360,000	218	101	0.37
Monolithic Power Systems Inc.	48,913	20,254,831	2,700	132,065,100	414	7,502	15.34
Paycom Software Inc.	70,036	2,958,410	5,385	377,143,860	42	549	0.78
SolarEdge Technologies Inc.	78,132	7,361,336	3,964	309,715,248	94	1,857	2.38
Teradyne Inc.	128,299	10,954,713	5,900	756,964,100	85	1,857	1.45
PTC Inc.	143,681	12,887,116	6,503	934,357,543	90	1,982	1.38
Gen Digital Inc.	94,195	13,517,505	3,900	367,360,500	144	3,466	3.68
Tyler Technologies Inc.	88,714	5,590,005	6,800	603,255,200	63	822	0.93
Zebra Technologies Corporation	60,450	13,589,616	9,800	592,410,000	225	1,387	2.29
Ceridian HCM Holding Inc.	83,919	10,626,701	7,462	626,203,578	127	1,424	1.70
Garmin Ltd.	38,118	4,238,341	18,700	712,806,600	111	227	0.59
Moody's Corp.	88,985	9,750,157	13,640	1,213,755,400	110	715	0.80
S&P Global Inc.	27,835	16,143,770	22,850	636,029,750	580	707	2.54
FactSet Research Systems Inc.	18,958	6,604,998	11,203	212,386,474	348	590	3.11
Visa Inc.	152,395	28,103,602	21,500	3,276,492,500	184	1,307	0.86
Jack Henry & Associates Inc.	78,477	9,758,392	6,847	537,332,019	124	1,425	1.82
Equifax Inc.	90,330	16,065,575	13,000	1,174,290,000	178	1,236	1.37
Verisk Analytics Inc.	72,679	12,796,321	9,367	680,784,193	176	1,366	1.88
CoStar Group Inc.	94,511	22,164,341	4,742	448,171,162	235	4,674	4.95
Roper Technologies Inc.	98,550	21,532,055	19,300	1,902,015,000	218	1,116	1.13

MarketAxess Holding Inc.	162,120	5,742,184	671	108,782,520	35	8,558	5.28
TOTAL (78 firms)	7,394,496	1,559,905,622	3,465,678	267,239,628,369	211	450	0.58
averages	94,801	19 998 790	44,432	3,426,149,082			

A	B	C	D	E	F	G	H
Company by sector (note 2)	Median employee salary (\$)	CEO total pay (\$)	Total nb. of employees	Total pay B*D (estimated) (\$)	CEO pay ratio C/B	CEO pay per employee C/D (\$)	B-Ratio: CEO pay over Total Pay C/E (%)
UTILITIES							
CMS Energy Corp.	135,987	6,871,068	9,583	1,303,163,421	51	717	0.53
NiSource Inc.	124,663	9,535,782	7,272	906,549,336	76	1,311	1.05
Alliant Energy Corp.	110,610	10,449,260	3,313	366,450,930	94	3,154	2.85
Ameren Corp.	132,415	9,807,836	9,116	1,207,095,140	74	1,076	0.81
Public Service Enterprise Group Inc.	146,034	14,208,674	7,900	1,153,668,600	97	1,799	1.23
CenterPoint Energy Inc.	103,170	37,809,810	9,418	971,655,060	366	4,015	3.89
FirstEnergy Corp.	124,120	10,714,062	12,395	1,538,467,400	86	864	0.70
Consolidated Edison Inc.	132,803	10,342,198	13,871	1,842,110,413	78	746	0.56
American Electric Power Company Inc.	111,771	15,051,215	16,688	1,865,234,448	135	902	0.81
Dominion Energy Inc.	110,406	8,161,083	17,100	1,887,942,600	74	477	0.43
WEC Energy Group Inc.	122,530	18,481,871	6,938	850,113,140	151	2,664	2.17
Xcel Energy Inc.	122,532	8,350,364	11,321	1,387,184,772	68	738	0.60
Exelon Corp.	160,633	15,757,378	31,518	5,062,830,894	98	500	0.31
PPL Corp.	147,670	11,356,481	5,607	827,985,690	77	2,025	1.37
Sempra Energy	137,800	24,675,982	15,390	2,120,742,000	179	1,603	1.16
NextEra Energy Inc.	132,798	25,335,936	9,700	1,288,140,600	191	2,612	1.97
Duke Energy Corp.	115,895	16,451,236	27,605	3,199,281,475	142	596	0.51
Pinnacle West Capital Corp.	136,805	8,100,157	5,872	803,318,960	59	1,379	1.01
American Water Works Company Inc.	91,238	7,398,128	6,400	583,923,200	81	1,156	1.27
Evergy Inc.	133,369	11,138,082	4,930	657,509,170	84	2,259	1.69
The Southern Co.	132,450	21,243,559	27,300	3,615,885,000	160	778	0.59
Eversource Energy	133,297	6,467,078	9,227	1,229,931,419	49	701	0.53
Entergy Corp.	135,272	17,045,744	12,369	1,673,179,368	126	1,378	1.02
Edison International	175,717	14,364,340	13,003	2,284,848,151	82	1,105	0.63
DTE Energy Co.	136,472	11,128,277	10,300	1,405,661,600	82	1,080	0.79
NRG Energy Inc.	126,289	10,854,224	6,635	837,927,515	86	1,636	1.30
PG&E Corporation	201,157	51,198,471	26,000	5,230,082,000	255	1,969	0.98
AES Corporation	47,543	14,379,190	8,450	401,738,350	302	1,702	3.58
Atmos Energy Corp.	81,388	4,839,562	4,791	389,929,908	59	1,010	1.24
TOTAL (29 firms)	3,702,834	431,517,048	350,012	46,892,550,560	117	1,233	0.92
averages	127,684	14,879,898	12,069	1,616,984,502	119	1,447	1.23

A	B	C	D	E	F	G	H
	Median employee salary (\$)	CEO total pay (\$)	Total nb. of employees	Total pay B*D (estimated) (\$)	CEO pay ratio C/B	CEO pay per employee C/D (\$)	B-Ratio: CEO pay over Total Pay C/E (%)
GRAND TOTAL (490 firms)	41,336,471	8,004,827,970	25,790,147	1,589,863,343,097			
Average of medians over 490 firms	84,360	16,336,384	52,633	3,244,619,068	291	2,111	2.58
Median of medians over 490 firms	72,118	14,493,390	19,544	1,450,969,452	190	668	0.97
Weighted average value or ratio (3)					194	310	0.50

Note 1: The S&P 500 index covers about 80 percent of the American equity market by capitalization.

Note 2: Firms with CEO pay above \$100 million (7 firms) or below \$1 million (3 firms) are clear outliers, not representative of S&P 500 firms. Those are the following. Name of the company (level and growth of CEO pay in 2021-22) : Warner Bros. Discovery (\$246.6 millions, +554%), Amazon (\$212.7 millions, 12,546%), Expedia (\$296.2 millions, 6,952%), ServiceNow (\$165.8 millions, 560%), Activision Blizzard (\$154.6 millions, 413%), Oracle (\$138.2 millions, 1,200%), Intel (\$178.6 millions, 698%), Berkshire Hathaway (\$373,653, 1.8%), Tesla (0, 0%), Take-Two Interactive Software (\$142,996, 3.4%). Those firms highlighted in blue in the tables are excluded from the computation of totals and averages per industry and the grand total (490 firms).

Note 3: The weighted average pay ratio 194 equals the ratio of average values. Similarly for the CEO pay per employee 310 and the B-ratio 0.50%.

APPENDIX B: Composition of CEO Total Pay

Company by sector		Composition of CEO Total Pay (USD)						
COMMUNICATIONS	Salary	Bonus	Value of Stock Awards	Value of Option Awards	Non-Equity Incentive Plan Compensation	Change in Pension Value and Deferred Compensation Earnings	All Other Compensation	TOTAL
Discovery Inc.	3,000,000	4,400,000	13,165,436	202,889,764	22,000,000	-	1,118,281	246,573,481
Verizon Communications Inc.	1,500,000	-	14,500,057	-	3,825,000	-	517,814	20,342,871
Lumen Technologies (Centurylink)	1,800,011	-	17,120,198	-	3,600,022	-	134,550	22,654,781
AT&T Inc.	2,400,000	-	13,420,341	-	6,888,000	1,468,869	643,669	24,820,879
Fox Corporation	3,000,000	-	8,211,824	2,750,000	6,270,000	-	1,516,857	21,748,681
News Corp.	3,057,692	-	8,031,023	-	8,133,333	-	440,155	19,662,203
The Walt Disney Co.	2,500,000	-	10,215,466	3,750,012	14,330,000	1,358,505	310,310	32,464,293
Paramount Global (CSB Corp.)	3,100,000	-	-	-	16,828,412	-	106,800	20,035,212
T-Mobile US Inc.	1,498,462	-	13,684,862	-	7,387,500	-	39,835	22,610,659
DISH Network Corp.	1,000,000	-	150,025	1,731,437	-	-	14,420	2,895,882
Netflix Inc.	650,000	-	-	39,731,118	-	-	442,607	40,823,725
Charter Communications Inc.	2,500,000	-	-	30,004,409	8,901,000	59,302	395,552	41,860,263
The Interpublic Group of Cos Inc.	1,500,000	2,000,000	6,295,623	985,000	6,404,500	-	186,524	17,371,647
Expedia Group Inc.	849,999	-	157,180,000	137,387,250	-	-	830,500	296,247,749
Comcast Corp.	3,249,415	-	13,512,534	8,475,488	8,625,586	1,832	113,726	33,978,581
Omnicom Group Inc.	1,000,000	-	8,075,014	-	10,860,000	-	46,701	19,981,715
Booking Holdings Inc.	750,000	-	48,010,707	-	5,212,500	-	8,988	53,982,195
Alphabet Inc.	2,000,000	-	-	-	-	-	4,322,599	6,322,599
Meta Platforms Inc.	1	-	-	-	-	-	26,823,060	26,823,061
Take-Two Interactive Software Inc.	1	-	-	-	-	-	142,995	142,996
Electronic Arts Inc.	1,292,923	-	13,973,702	-	4,571,933	-	19,981	19,858,539
Match Group Inc.	750,000	3,500,000	21,137,675	-	-	-	10,000	25,397,675
TOTAL (19 Firms)	33,548,504	5,500,000	196,339,051	87,427,464	111,837,786	2,888,508	36,094,148	473,635,461
averages	1,765,711	289,474	10,333,634	4,601,445	5,886,199	152,027	1,899,692	24,928,182

CONSUMER DISCRETIONARY	Salary	Bonus	Value of Stock Awards	Value of Option Awards	Non-Equity Incentive Plan Compensation	Change in Pension Value and Deferred Compensation Earnings	All Other Compensation	TOTAL
Amazon.com Inc.	175,000	-	211,933,520	-	-	-	592,649	212,701,169
NVR	2,075,000	-	-	-	2,075,000	-	12,400	4,162,400
Las Vegas Sands Corp.	3,150,000	-	8,964,000	17,220,000	-	-	1,870,900	31,204,900
PulteGroup Inc.	1,000,000	-	7,000,001	-	8,122,429	25	27,100	16,149,555
Mohawk Industries Inc.	1,308,437	-	1,901,669	-	1,962,655	-	17,935	5,190,696
LKQ Corp.	1,050,000	-	4,200,026	-	4,035,000	-	160,610	9,445,636
O'Reilly Automotive Inc.	1,334,615	-	-	1,349,999	10,000,000	-	79,656	12,764,270
Hasbro Inc.	336,986	-	2,660,077	-	-	-	133,170	3,130,233
Tesla Inc								
CarMax Inc.	1,180,248	-	2,644,810	5,999,981	3,517,194	-	34,689	13,689,123
BorgWarner Inc.	1,260,000	-	13,017,485	-	2,499,840	-	814,765	17,592,090
Ulta Beauty Inc.	1,037,756	-	2,349,012	1,353,033	3,735,922	-	64,044	8,539,767
Tractor Supply Co.	1,147,115	-	4,724,795	2,024,973	3,105,000	-	115,368	11,117,251
Ford Motor Co.	1,700,000	-	16,078,486	-	3,672,000	-	1,362,688	22,813,174
General Motors Co.	2,100,000	-	14,582,198	3,937,507	7,644,000	-	873,075	29,136,780
Advance Auto Parts Inc.	1,100,008	-	4,500,044	1,499,981	2,940,300	-	11,938	10,052,271
Whirlpool Corp.	1,315,000	-	6,801,705	3,149,966	4,208,000	3,070,010	20,722	18,751,901
Domino's Pizza Inc.	904	-	2,556,092	904,039	2,504,080	-	269,792	7,138,003
Marriott International Inc.	1,234,615	-	10,171,778	2,250,072	4,691,538	13,556	30,323	18,391,882
Etsy Inc.	600	-	35,273,412	3,599,940	1,099,000	-	1,194	40,584,292
Pool Corporation	525	-	2,889,832	-	2,100,000	-	60,552	5,575,384
Lowe's Cos Inc.	1,450,000	-	8,248,835	2,595,136	5,503,040	-	74,704	17,871,715
Newell Brands Inc.	1,400,000	-	4,693,471	2,434,432	2,627,100	-	283,795	11,438,798
Caesars Entertainment Inc	2,000,000	5,000,000	7,391,597	-	8,000,000	-	18,492	22,576,517
Norwegian Cruise Line Holdings Ltd.	1,797,041	-	14,063,639	-	3,600,000	-	208,088	19,668,768
The Home Depot Inc.	1,300,000	-	5,839,484	1,459,998	4,388,180	-	72,089	13,059,751
Hilton Worldwide Holdings Inc.	1,255,000	-	13,706,216	4,568,720	3,351,563	-	403,749	23,285,248
Best Buy Company Inc.	1,278,462	-	9,598,480	-	4,681,026	-	73,189	15,631,157
Royal Caribbean Cruises Ltd.	1,300,000	-	11,250,070	-	2,925,000	156,971	179,986	15,812,027
Wynn Resorts Ltd.	1,900,000	-	8,500,202	-	2,500,000	-	28,545	12,928,747
Bath Body and Works	1,335,577	4,000,000	5,444,545	1,903,973	4,625,208	80,547	278,777	17,668,627
Chipotle Mexican Grill Inc.	1,250,000	-	7,200,970	4,800,102	4,342,500	-	287,008	17,880,580
Ross Stores Inc.	1,390,000	-	9,800,128	-	4,682,563	-	116,944	15,989,635
VF Corp.	1,400,000	-	5,505,021	4,784,350	3,214,400	-	519,383	15,423,154
Yum! Brands Inc.	1,200,000	-	10,936,620	5,000,003	5,405,400	4,789,314	247,322	27,578,659
The TJX Cos Inc.	1,600,001	-	21,754,956	-	7,537,124	305,528	604,391	31,802,000
McDonald's Corp.	1,302,500	-	7,000,179	7,000,002	4,368,745	-	356,706	20,028,132
MGM Resorts International	1,500,000	-	8,000,000	-	3,609,375	-	165,149	13,274,524
Fortune Brands Home & Security Inc.	1,148,462	-	4,612,510	1,537,493	2,534,600	-	337,316	10,170,381

Aptiv Plc	1,462,272	-	12,295,011	-	745,759	-	241,738	14,744,780
Carnival Corp.	1,500,000	-	7,449,735	-	6,000,000	-	114,053	15,063,788
Genuine Parts Co.	1,210,000	-	5,600,018	-	2,910,050	1,836,853	253,783	11,810,704
Lennar Corp.	800	-	16,607,806	-	16,607,876	-	29,535	34,045,217
Starbucks Corp.	1,609,610	-	14,755,014	-	4,030,000	-	30,538	20,425,162
Copart Inc.	788,459	8,736	6,284,000	23,078,547	-	-	9	31,033,606
AutoZone Inc.	1,050,000	-	89,909	10,280,340	2,613,975	-	295,786	14,330,010
Tapestry Inc.	1,340,385	-	4,799,985	3,199,996	4,337,550	-	6,151	13,739,426
Darden Restaurants Inc.	1,248,077	-	4,615,649	1,367,033	3,744,231	-	916,852	11,891,842
NIKE Inc.	1,500,000	-	12,061,812	6,782,995	4,450,000	-	4,043,253	28,838,060
Ralph Lauren Corp.	1,341,346	-	9,228,711	-	7,896,240	-	86,761	18,553,058
D.R. Horton Inc.	700,000	-	21,987,160	-	7,000,138	230,414	79,150	29,996,862
eBay Inc.	1,000,000	1,500,000	15,000,111	-	4,050,000	-	134,991	21,685,102
Under Armour Inc.	1,286,539	-	10,000,000	-	3,985,004	-	273,370	15,544,913
PVH Corp.	1,300,000	-	6,400,233	1,602,896	5,200,000	200,637	10,442	14,714,208
Live Nation Entertainment Inc.	2,562,500	-	10,584,334	-	-	-	695,630	13,842,464
TOTAL (53 firms)	68,038,840	10,508,736	461,621,833	125,685,507	219,378,605	10,683,855	17,428,596	917,777,230
averages	1,283,752	198 278	8,709,846	2,371,425	4,139,219	201,582	328,841	17,316,552

CONSUMER STAPLES	Salary	Bonus	Value of Stock Awards	Value of Option Awards	Non-Equity Incentive Plan Compensation	Change in Pension Value and Deferred Compensation Earnings	All Other Compensation	TOTAL
The Kraft Heinz Co.	1,000,000	-	3,743,976	-	2,875,193	-	986,430	8,605,599
Molson Coors Brewing Co.	1,137,671	-	4,202,824	1,040,003	1,621,182	-	233,000	8,234,680
Kellogg Co.	1,300,000	-	5,100,134	1,931,954	2,100,800	-	245,449	10,678,337
The Coca-Cola Co.	1,600,000	-	13,672,020	2,800,715	6,400,000	293,215	117,928	24,883,878
Monster Beverage Corp.	950,000	-	10,121,372	3,407,849	2,130,685	-	97,671	16,707,577
Archer-Daniels-Midland Co.	1,400,004	-	15,939,571	-	5,320,000	59,843	789,423	23,508,841
Kimberly-Clark Corp.	1,356,250	-	6,976,205	1,742,254	1,439,886	-	494,567	12,009,162
The Hershey Co.	1,240,000	-	7,307,707	-	4,051,730	3,281,860	263,273	16,144,570
Mondelez International Inc.	1,487,670	-	9,120,315	2,320,357	2,525,250	-	674,728	16,128,320
The Kroger Co.	1,351,358	-	8,800,023	2,199,162	4,647,750	159,640	1,010,797	18,168,730
Colgate-Palmolive Co.	1,337,500	-	6,403,522	4,500,006	2,613,600	29,102	574,421	15,458,151
PepsiCompany Inc.	1,542,308	-	8,745,056	-	10,222,640	4,415,239	581,364	25,506,607
Philip Morris International Inc.	1,427,758	-	4,713,468	-	3,617,484	781,194	17,664	10,557,568
Walmart Inc.	1,276,892	-	19,195,007	-	3,816,000	1,028,364	354,410	25,670,673
Altria Group Inc.	1,250,000	-	6,000,059	-	2,754,000	2,487,905	135,008	12,626,972
McCormick & Company Inc.	1,250,000	-	4,050,045	4,050,014	2,751,229	-	617,368	12,718,656
Tyson Foods Inc.	1,296,615	-	5,125,607	1,650,008	3,432,569	-	509,698	12,014,497
Hormel Foods Corp.	1,000,000	200	1,750,042	1,749,732	4,733,850	-	244,278	9,478,102
Costco Wholesale Corp.	1,230,769	-	7,915,928	-	500,000	159,954	98,419	9,905,070
Walgreens Boots Alliance Inc.	1,500,000	-	8,511,685	2,885,690	3,570,000	-	820,114	17,287,489
Sysco Corp.	1,296,438	-	6,990,845	3,146,812	2,070,900	-	151,511	13,656,506
Keurig Dr Pepper Inc.	1,528,846	-	4,297,860	-	1,845,000	-	100,815	7,772,521
The Clorox Co.	1,111,538	-	4,919,815	1,229,989	84,375	1,098	428,618	8,534,808
Campbell Soup Co.	1,161,333	-	6,388,968	-	2,203,296	-	523,468	10,277,065
The Procter & Gamble Co.	1,466,667	3,955,968	8,684,664	3,360,006	-	-	24,871	17,716,015
General Mills Inc.	1,250,000	-	5,357,925	1,323,981	3,550,500	532,823	250,966	12,266,195
Conagra Brands Inc.	1,269,000	-	7,976,396	-	2,198,543	-	503,115	11,947,054
Lamb Weston Holdings Inc.	1,085,770	-	5,249,938	-	1,313,903	-	208,502	7,858,113
Brown-Forman Corp.	1,250,040	-	1,681,355	1,690,184	2,731,438	811,189	20,073	8,364,936
Constellation Brands Inc.	1,276,923	-	3,681,902	3,149,674	3,830,770	-	101,012	12,040,281
Dollar Tree Inc.	1,384,615	-	7,249,961	-	1,478,325	-	136,797	10,249,698
Church & Dwight Company Inc.	1,117,400	-	-	6,359,608	1,130,800	-	281,718	8 889,526
Target Corp.	1,400,000	1,201,200	13,749,937	-	2,795,240	-	612,389	19,758,766
Dollar General Corp.	1,350,052	-	5,179,592	5,239,005	4,544,529	-	305,695	16,618,873
The Estee Lauder Cos Inc.	2,100,000	-	9,883,468	4,941,572	7,013,150	974,688	567,178	25,480,056

The JM Smucker Co.	1,100,385	221	4,143,838	1,381,245	1,748,110	-	115,961	8,511,639
TOTAL (36 firms)	47,083,802	5,157,589	252,831,030	62,099,820	109,662,727	15,016,114	13,198,699	506,235,531
averages	1,307,883	143,266	7,023,084	1,724,995	3,046,187	417,114	366,631	14,062,098

ENERGY	Salary	Bonus	Value of Stock Awards	Value of Option Awards	Non-Equity Incentive Plan Compensation	Change in Pension Value and Deferred Compensation Earnings	All Other Compensation	TOTAL
Kinder Morgan Inc.	1	-	18,000,005	-	-	253	-	18,000,259
Coterra Energy Inc.	301,673	-	10,000,000	-	-	-	760,266	11,061,939
The Williams Cos Inc.	1,333,846	-	9,000,015	-	3,398,640	-	27,032	13,759,533
Targa Resources Corp.	875,000	3,500,000	10,289,456	-	-	-	27,484	14,691,940
Pioneer Natural Resources Co.	1,240,882	-	12,015,954	-	2,581,040	-	164,949	16,002,825
Apache Corp.	1,300,000	-	10,596,139	-	2,531,620	-	612,948	15,040,707
Devon Energy Corp.	1,045,000	-	8,310,964	-	2,336,400	-	222,183	11,914,547
Exxon Mobil Corp.	1,615,000	3,142,000	13,505,225	-	-	5,137,153	173,110	23,572,488
Valero Energy Corp.	1,800,000	-	13,360,052	-	5,264,064	2,030,418	230,172	22,684,706
ConocoPhillips	1,615,000	-	14,405,706	-	5,038,800	2,515,751	311,383	23,886,640
EQT Corporation	1	-	15,119,762	-	1,800,000	-	-	16,919,763
Chevron Corp.	1,650,000	-	12,233,699	3,874,962	4,500,000	-	351,624	22,610,285
Baker Hughes a GE Co.	1,494,231	-	10,856,292	-	2,722,125	-	573,804	15,646,452
Schlumberger Nv	1,400,000	-	10,499,803	-	3,916,100	802,703	176,896	16,795,502
Halliburton Co.	1,500,000	-	6,300,070	-	14,131,664	242,327	1,417,921	23,591,982
Marathon Petroleum Corp.	1,600,000	-	14,186,189	-	4,416,300	450,102	532,615	21,185,206
ONEOK Inc.	652,484	-	5,992,741	-	1,296,100	1,235,813	109,975	9,287,113
Phillips 66	1,675,008	-	11,318,245	3,140,920	4,154,020	-	665,013	20,953,206
Occidental Petroleum Corp.	1,000,000	-	5,512,829	1,837,511	2,400,000	-	318,199	11,068,539
EOG Resources Inc.	687,933	-	6,591,486	1,027,635	1,232,500	-	213,333	9,752,887
Diamondback Energy Inc.	1,250,000	-	9,323,289	-	2,921,875	-	344,831	13,839,995
Hess Corp.	1,500,000	-	5,100,041	3,400,015	2,385,000	-	23,142	12,408,198
Marathon Oil Corp.	1,197,923	-	7,849,531	-	3,456,010	265,159	228,669	12,997,292
TOTAL (23 firms)	26,733,982	6,642,000	240,367,493	13,281,043	70,482,258	12,679,679	7,485,549	377,672,004
averages	1,162,347	288,783	10,450,761	577,437	3,064,446	551,290	325,459	16,420,522

FINANCIALS	Salary	Bonus	Value of Stock Awards	Value of Option Awards	Non-Equity Incentive Plan Compensation	Change in Pension Value and Deferred Compensation Earnings	All Other Compensation	TOTAL
Berkshire Hathaway Inc.	100,000	-	-	-	-	-	273,204	373,204
SVB Financial Group	1,040,385	-	4,238,529	1,622,657	3,000,000	-	20,561	9,922,132
Cincinnati Financial Corp.	1,103,055	-	1,475,180	1,035,915	2,761,844	-	114,773	6,490,767
Truist Financial Corporation	1,133,333	-	4,104,530	-	4,276,067	381,585	499,911	10,395,426
Loews Corp.	975	-	900	-	3,950,000	-	294,523	6,119,523
VICI Properties Inc	900	-	4,050,000	-	2,700,000	-	12,894	7,662,894
CME Group Inc.	1,500,000	5,000,000	11,563,324	-	4,382,701	35,942	44,277	22,924,737
Intercontinental Exchange Inc.	1,050,000	-	8,599,877	2,149,989	2,835,000	-	15,352	14,788,386
KeyCorp.	1,000,000	-	3,869,989	429,997	3,300,000	15,862	37,636	8,653,484
Nasdaq Inc.	1,250,000	-	12,864,768	-	5,799,474	-	51,651	19,965,893
The Progressive Corp.	950	-	9,500,212	-	3,847,502	-	165,247	14,462,961
Invesco Ltd.	790	-	7,216,998	-	4,800,000	-	90,754	12,897,752
The Charles Schwab Corp.	1,400,000	-	8,010,000	5,340,000	7,172,550	-	15,854	21,938,404
Arch Capital Group Ltd.	1,000,000	-	3,482,784	1,125,018	3,300,000	-	428,211	9,336,013
The Travelers Cos Inc.	1,300,000	-	6,900,051	4,598,852	6,500,000	471,951	82,843	19,853,697
Invitation Homes Inc.	900	-	6,500,037	-	2,298,808	-	116	9,710,445
The Goldman Sachs Group Inc.	2,000,000	9,900,000	27,380,180	-	-	-	264,892	39,545,072
Northern Trust Corp.	950	-	6,825,124	-	2,500,000	144,932	29,177	10,449,233
Morgan Stanley	1,500,000	8,375,000	24,553,943	-	-	2,487	510,205	34,941,635
BlackRock Inc.	1,500,000	11,250,000	18,849,371	-	-	-	987,964	32,587,335
MetLife Inc.	1,350,000	-	8,743,585	1,150,008	4,650,000	449,706	278,074	16,621,373
US Bancorp	1,200,000	-	9,800,000	-	4,534,680	3,583,061	48,535	19,166,276
Discover Financial Services	1,100,000	-	7,600,006	-	3,190,000	-	197,212	12,087,218
Aon Plc	1,500,000	-	15,262,436	-	2,437,500	-	668,448	19,868,384
Assurant Inc.	1,200,000	-	7,273,698	-	2,227,200	-	803,882	11,504,780
Ameriprise Financial Inc.	1,025,000	-	9,559,000	2,541,000	6,772,500	654,992	676,972	21,229,464
The Allstate Corp.	1,378,943	-	6,335,804	4,304,994	6,286,039	697,929	63,211	19,066,920
State Street Corp.	1,000,000	-	12,999,934	-	-	-	113,726	14,113,660
Bank of America Corp.	1,500,000	-	21,395,424	-	-	56,599	267,755	23,729,169
Capital One Financial Corp.	-	4,550,000	15,817,843	-	-	354	8,617	20,457,553
Prudential Financial Inc.	1,200,000	-	11,300,123	-	6,425,878	781,247	92,489	19,799,737
Marsh & McLennan Cos Inc.	1,500,000	-	6,528,663	6,250,006	7,000,000	-	241,034	21,519,703
Wells Fargo & Co.	2,500,000	-	13,485,052	-	5,365,854	-	-	21,350,906
Synchrony Financial	950,685	-	5,250,015	-	2,450,000	-	229,647	8,880,347
Chubb Ltd.	1,400,000	7,500,000	10,125,007	2,996,944	-	-	1,159,233	23,181,184
American Express Co.	1,500,000	8,000,000	12,549,027	2 899,974	-	16,429	548,492	25,513,922
The Bank of New York Mellon Corp.	1,250,000	-	9,135,074	-	3,643,750	-	99,218	14,128,042
JPMorgan Chase & Co.	1,500,000	5,000,000	25,000,000	52,620,000	-	25,486	282,659	84,428,145
Citigroup Inc.	1,333,333	6,350,000	11,215,773	-	1,562,500	-	79,718	20,541,324
American International Group Inc.	1,482,693	-	9,379,956	2,874,994	8,000,000	-	167,577	21,905,220

Vornado Realty Trust	824,821	753,014	7,873,225	-	-	-	312,291	9,763,351
Boston Properties Inc.	900	-	8,745,377	-	3,231,250	-	1,791	12,894,537
SBA Communications Corp.	1,030,000	-	7,172,549	-	1,776,750	-	1,588	9,995,179
Host Hotels & Resorts Inc.	1,000,000	-	7,370,377	-	2,913,300	-	237,053	11,520,730
Weyerhaeuser Co.	1,137,500	-	7,857,107	-	3,386,000	326,224	87	12,715,531
CBRE Group Inc.	939,726	-	9,789,859	-	3,174,000	-	45	13,908,085
The Hartford Financial Services Group Inc.	1,150,000	-	5,001,475	4,625,000	4,740,000	8,184	299,689	15,824,348
Cboe Global Markets Inc.	1,265,000	-	5,348,882	-	3,179,926	-	85,275	10,646,558
Willis Towers Watson Plc	1,770,721	-	13,300,715	-	3,501,000	34,743	1,730,113	20,337,292
Ventas Inc.	1,075,000	-	11,013,974	-	2,042,500	-	132,254	14,263,728
Digital Realty Trust Inc.	1,000,000	-	10,395,785	-	3,584,615	-	2,159,201	17,139,601
Crown Castle International Corp.	1,030,000	-	10,504,164	-	2,966,544	-	52,802	14,553,510
Simon Property Group Inc.	1,250,000	3,750,000	5,458,550	-	-	-	16,642	10,475,192
AvalonBay Communities Inc.	1,000,000	-	8,551,838	1,999,988	2,798,600	-	21,034	14,371,460
UDR Inc.	800,000	-	13,384,611	-	-	-	43,722	14,228,333
Essex Property Trust Inc.	900	-	3,075,200	675,004	2,500,000	-	32,864	7,183,068
Aflac Inc.	1,441,100	-	9,122,025	-	4,809,396	-	355,712	15,728,233
Prologis Inc.	1	2,625,000	22,263,989	-	-	-	125	24,901,490
Welltower Inc.	1,000,039	-	5,999,991	1,500,088	3,920,000	-	333,592	12,753,710
Arthur J Gallagher & Co.	1,300,000	-	3,692,473	1,799,676	5,200,000	19,063	1,871,043	13,882,255
Federal Realty Investment Trust	950	-	5,213,719	-	1,335,938	-	2,126	7,520,917
Regency Centers Corp.	900	-	3,950,257	-	2,160,000	-	16,058	7,026,315
Kimco Realty Corp.	1,000,000	-	5,963,854	-	3,500,000	-	24,284	10,488,138
W. R. Berkley Corporation	1,006,667	-	3,850,030	-	8,776,200	-	514,408	14,147,305
Public Storage	800	-	5,518,800	2,630,953	1,396,800	-	116	10,358,153
Realty Income Corp.	950	375	7,596,215	-	3,500,000	-	439,796	12,861,011
First Republic Bank	550,000	-	5,682,935	-	1,087,500	-	15,462	7,335,897
Brown & Brown Inc.	1,000,000	1,020,000	2,940,017	-	3,980,000	-	261,018	9,201,035
Healthpeak Properties Inc.	1,150,000	-	7,102,283	-	3,450,000	-	11,600	11,713,883
The PNC Financial Services Group Inc.	1,200,000	-	12,000,025	-	3,800,000	338,606	167,639	17,506,270
Comerica Inc.	1,015,827	-	3,430,854	374,728	2,740,500	114,858	19,327	7,696,094
Citizens Financial Group Inc.	1,487,000	2,928,900	7,840,912	-	-	-	173,264	12,430,076
Regions Financial Corp.	1,000,000	-	3,767,112	-	3,593,033	4,883,636	200,796	13,444,577
Huntington Bancshares Inc.	1,098,106	-	3,937,478	1,312,498	2,800,000	-	471,096	9,619,178
M&T Bank Corp.	1,000,000	1,500,000	3,400,240	850,016	-	-	117,918	6,868,174
Camden Property Trust	600,196	-	2,008,427	-	1,673,800	-	3,000	4,285,423
Fifth Third Bancorp	1,100,070	-	4,887,500	862,502	3,300,000	-	381,577	10,531,649
Raymond James Financial Inc.	500,000	7,100,062	5,930,786	-	-	-	370,198	13,901,046
Franklin Resources Inc.	752,885	-	11,158,859	-	3,650,000	-	173,255	15,734,999
T Rowe Price Group Inc.	350	-	6,600,390	-	9,900,000	-	27,694	17,127,330
American Tower Corp.	1,000,000	-	12,000,067	-	3,080,000	-	34,507	16,114,574
Alexandria Real Estate Equities Inc.	690	-	5,874,602	-	1,552,500	59,978	143,148	8,320,228

Equinix Inc.	1,050,000	-	22,150,441	-	256	-	47,496	23,248,193
Equity Residential	800	-	6,406,107	600,678	66,852	-	15,222	8,490,527
Extra Space Storage Inc.	850	-	4,278,669	-	1,434,375	-	752,938	7,315,982
Iron Mountain Inc.	1,184,326	-	11,234,806	1,387,499	3,182,000	-	57,487	17,046,118
Lincoln National Corp.	1,360,000	-	8,023,336	1,903,014	4,592,448	200,407	681,719	16,760,924
Mid-America Apartment Communities Inc.	854,543	700	3,742,806	-	2,993,160	-	76,446	7,667,655
Globe Life Inc.	1,000,096	-	3,244,560	2,521,400	1,520,000	-	67,698	8,353,754
Principal Financial Group Inc.	1,000,000	-	4,275,014	4,275,011	6,075,000	1,699,323	241,815	17,566,163
Everest Re Group Ltd.	1,250,000	-	4,001,804	-	3,000,000	-	614,322	8,866,126
Signature Bank	1,150,000	-	4,176,996	-	3,487,871	-	160,984	8,975,851
Zions Bancorp NA	1,030,000	792	1,021,348	317,259	1,449,210	-	46,296	4,656,113
TOTAL (92 firms)	87,014,606	85,603,843	777,875,632	119,575,662	274,771,171	15,003,584	23,710,973	1,402,004,985
averages	945,811	930,477	8,455,170	1,299,735	2,986,643	163,082	257,728	15,239,185

HEALTH CARE	Salary	Bonus	Value of Stock Awards	Value of Option Awards	Non-Equity Incentive Plan Compensation	Change in Pension Value and Deferred Compensation Earnings	All Other Compensation	TOTAL
Elevance Health Inc.	1,561,538	-	9,900,081	3,299,986	4,019,399	-	567,237	19,348,241
Vertex Pharmaceuticals Inc.	1,221,923	-	10,924,599	-	3,016,570	-	35,764	15,198,856
Illumina Inc.	1,088,462	-	11,000,700	-	2,227,500	-	16,972	14,333,634
Zimmer Biomet Holdings Inc.	1,176,930	-	5,825,077	5,825,003	1,837,775	-	316,273	14,981,058
Biogen Inc.	1,533,173	-	14,084,314	-	1,153,125	494,290	424,763	17,689,665
Gilead Sciences Inc.	1,650,000	-	9,764,060	3,375,004	3,446,190	-	994,212	19,229,466
Waters Corp.	1,000,000	-	2,785,291	2,499,991	2,350,241	-	18,036	8,653,559
Eli Lilly & Co.	1,500,000	-	14,966,000	-	2,475,000	2,442,235	126,750	21,509,985
IDEXX Laboratories Inc.	976,923	-	1,500,029	4,499,229	2,062,500	-	26,340	9,065,021
Amgen Inc.	1,674,061	-	11,138,622	4,773,710	3,420,000	-	714,761	21,721,154
Moderna Inc.	990,385	-	3,750,000	11,250,000	1,500,000	-	665,354	18,155,739
Zoetis Inc.	1,200,000	-	6,929,797	2,309,970	2,340,000	-	318,724	13,098,491
DENTSPLY SIRONA Inc.	1,020,630	-	5,719,466	1,675,483	643,750	-	192,555	9,251,884
Bristol-Myers Squibb Co.	1,700,000	-	13,965,989	-	3,410,625	-	708,192	19,784,806
Mettler-Toledo International Inc.	819,073	-	3,611,726	5,721,581	1,308,960	-	349,982	11,811,322
PerkinElmer Inc.	1,002,885	-	4,134,370	1,378,134	3,117,188	-	28,429	9,661,006
Stryker Corp.	1,306,667	-	5,969,936	6,797,299	1,816,470	-	469,526	16,359,898
Merck & Company Inc.	1,319,959	-	6,324,576	2,760,003	2,834,606	235,640	247,337	13,722,121
Danaher Corp.	1,200,000	-	5,124,383	6,260,494	4,128,000	-	439,390	17,152,267
Abbott Laboratories	1,482,692	-	8,689,294	8,689,978	3,168,400	2,755,343	129,179	24,914,886
DaVita Inc.	1,200,000	-	-	-	1,743,799	-	354,640	3,298,439
DexCom Inc.	900,000	-	9,596,745	-	1,473,750	-	14,829	11,985,324
Cigna Corp.	1,500,000	-	11,745,385	3,625,042	2,700,000	-	301,839	19,872,266
Laboratory Corp of America Holdings	1,277,381	-	13,236,819	1,803,330	3,802,068	-	432,007	20,551,605
UnitedHealth Group Inc.	1,450,769	-	10,781,573	3,593,777	2,550,000	-	57,024	18,433,143
HCA Healthcare Inc.	1,480,148	-	6,789,766	7,080,841	4,477,436	451,661	355,408	20,635,260
ResMed Inc.	1,080,608	-	9,000,000	-	1,349,578	-	229,024	11,659,210
Teleflex Inc.	981,539	122,692	2,664,264	3,000,606	1,684,260	-	220,273	8,673,634
Thermo Fisher Scientific Inc.	1,624,247	-	8,460,843	4,090,719	6,334,565	-	723,984	21,234,358
Humana Inc.	1,349,465	-	9,828,769	2,779,774	2,125,407	-	444,621	16,528,036
Molina Healthcare Inc.	1,500,000	-	15,000,089	-	3,375,000	-	86,609	19,961,698
Baxter International Inc.	1,300,000	-	6,476,195	5,443,374	2,364,863	-	50,302	15,634,734
Centene Corp.	1,800,000	-	12,750,020	2,249,984	3,438,000	-	399,986	20,637,990
IQVIA Holdings Inc.	1,800,000	-	14,108,891	4,425,579	7,200,000	535,539	545,842	28,615,851
Johnson & Johnson	1 650,000	-	14,789,176	5,069,996	4,252,800	702,916	277,071	26,741,959
Universal Health Services Inc.	1,100,042	-	-	10,104,427	2,750,105	52,002	14,366	14,020,942
Align Technology Inc.	1,230,385	-	15,836,576	-	4,446,000	-	78,439	21,591,400
Quest Diagnostics Inc.	1,238,462	-	7,631,057	2,624,978	2,695,511	-	367,810	14,557,818
Edwards Lifesciences Corp.	1,153,040	-	5,230,175	5,501,118	1,581,770	-	147,202	13,613,305
West Pharmaceutical Services Inc.	1,040,385	-	3,307,377	2,750,076	2,230,253	-	144,666	9,472,757
Incyte Corp.	1,139,709	-	7,399,170	4,689,466	1,160,596	-	55,324	14,444,265

Pfizer Inc.	1,687,500	-	6,180,808	7,050,649	8,000,000	49,901	1,384,361	24,353,219
Boston Scientific Corp.	1,344,329	-	9,126,292	2,749,999	2,346,000	360,000	137,419	16,064,039
AbbVie Inc.	1,700,000	-	12,573,689	3,134,649	4,908,750	780,993	814,073	23,912,154
Intuitive Surgical Inc.	846,119	-	2,976,672	2,858,652	1,376,466	-	1,500	8,059,409
STERIS Plc	767,280	-	1,397,772	2,870,787	854,729	-	12,600	5,903,168
Agilent Technologies Inc.	1,280,000	-	9,165,390	2,295,015	3,149,714	-	77,512	15,967,631
The Cooper Cos Inc.	925,000	375,781	4,249,836	4,249,824	1,127,344	51,121	16,000	10,994,906
Hologic Inc.	1,092,727	-	7,759,570	2,474,782	2,835,627	-	585,694	14,748,400
AmerisourceBergen Corp.	1,400,000	-	10,500,201	-	2,249,071	-	724,543	14,873,815
Bio-Techne Corporation	1,183,000	-	5,149,692	5,149,669	3,856,735	-	31,452	15,370,548
Becton Dickinson and Co.	1,278,125	-	8,888,006	3,739,961	2,491,313	154,081	159,744	16,711,230
Charles River Laboratories International Inc.	1,353,841	-	8,359,896	2,062,193	1,871,457	-	58,194	13,705,581
Cardinal Health Inc.	1,341,781	-	11,051,066	-	805,068	-	265,642	13,463,557
Medtronic Plc	1,345,192	-	8,750,185	3,750,293	2,553,466	-	450,497	16,849,633
ABIOMED Inc.	788,631	-	6,557,724	3,072,561	2,237,836	-	9,240	12,665,992
McKesson Corp.	1,375,000	-	12,250,438	-	4,210,938	-	315,706	18,152,082
Henry Schein Inc.	1,534,262	-	4,257,489	1,512,720	3,243,324	-	238,385	10,786,180
Bio-Rad Laboratories Inc.	987,885	-	4,126,907	1,423,476	2,132,330	-	25,327	8,695,925
Catalent Inc	1,075,000	-	6,510,335	2,790,005	1,890,810	-	141,367	12,407,517
Viatis Inc.	1,300,000	-	9,100,015	-	3,716,115	-	553,462	14,669,592
CVS Health Corp.	1,429,167	-	9,749,990	3,249,997	5,616,000	-	343,258	20,388,412
Regeneron Pharmaceuticals Inc.	1,767,800	-	-	-	4,030,584	-	672,130	6,470,514
TOTAL (63 firms)	81,024,120	498,473	499,423,173	194,384,184	179,515,737	9,065,722	19,109,148	983,020,557
averages	1,286,097	7,912	7,927,352	3,085,463	2,849,456	143,900	303,320	15,603,501

INDUSTRIALS	Salary	Bonus	Value of Stock Awards	Value of Option Awards	Non-Equity Incentive Plan Compensation	Change in Pension Value and Deferred Compensation Earnings	All Other Compensation	TOTAL
CSX Corp.	1,500,000	-	9,150,899	3,041,960	5,250,000	798,423	265,524	20,006,806
IDEX Corp.	900	-	2,323,931	1,850,104	1,467,000	-	178,737	6,719,772
Trane Technologies plc	1,037,500	-	5,173,935	1,500,036	2,224,399	2,695,010	257,638	12,888,518
Rollins Inc.	1,400,000	-	4,458,000	-	2,100,000	-	435,601	8,393,601
Fastenal Co.	7,175	-	-	538,313	1,165,000	-	2,801	2,423,614
Southwest Airlines Co.	64,375	201,016	3,945,578	-	787,984	128,205	113,223	5,819,756
WW Grainger Inc.	1,090,225	-	5,241,816	-	2,343,000	-	340,553	9,015,594
Carrier Global Corp.	1,275,000	-	4,708,211	4,359,119	3,827,200	-	723,285	14,892,815
Waste Management Inc.	1,294,231	-	7,312,195	1,700,005	2,656,497	-	94,435	13,057,363
Xylem Inc.	1,118,616	-	6,225,020	1,499,996	1,420,313	-	177,725	10,441,670
General Electric Co.	2,500,000	4,200,000	14,999,996	-	-	943,153	203	22,663,449
Textron Inc.	1 236,000	-	10,500,442	3,011,625	3,639,000	95,972	92,975	18,576,014
Raytheon Technologies	1,600,000	4,992,000	11,740,098	2,815,812	-	1,522,891	645,262	23,316,063
Allegion Plc	1,000,000	-	3,549,344	1,150,015	1,466,378	226,748	295,758	7,688,243
Northrop Grumman Corp.	1,589,439	-	13,500,119	-	3,744,000	371,464	671,745	19,876,767
Republic Services Inc.	906,539	-	4,665,286	-	2,191,780	-	161,803	7,925,408
American Airlines Group Inc.	-	-	7,200,000	-	-	-	38,011	7,238,011
Snap-on Inc.	1,142,473	-	4,818,839	1,116,427	2,356,351	365,210	73,646	9,872,946
Fortive Corp.	1,207,887	-	7,891,487	3,865,747	3,139,750	-	493,848	16,598,719
General Dynamics Corp.	1,671,250	-	11,045,739	4,350,097	6,074,000	-	412,776	23,553,862
Otis Worldwide Corporation	1,225,000	-	6,458,191	2,093,575	3,553,500	-	440,040	13,770,306
Dover Corp.	1,235,000	2,964,000	5,808,134	3,580,475	-	-	498,251	14,085,860
Pentair Plc	995,038	-	3,749,993	1,250,001	2,388,000	1,008,814	37,700	9,429,546
United Parcel Service Inc.	1,336,251	-	23,670,426	1,125,023	1,397,139	-	92,054	27,620,893
Cummins Inc.	1,575,000	-	6,879,016	-	6,225,300	465,336	501,267	15,645,919
Masco Corp.	1,274,354	-	6,043,341	2,230,172	3,268,700	-	594,207	13,410,774
3M Co.	1,337,487	-	5,250,138	5,250,960	3,131,774	2,978,538	251,687	18,200,584
Honeywell International Inc.	1,675,616	-	14,486,389	5,248,350	3,910,000	608,232	171,533	26,100,120
Ingersoll-Rand Plc	1,000,000	-	5,024,967	1,674,995	2,730,000	-	183,524	10,613,486
Stanley Black & Decker Inc.	1,304,000	-	7,023,444	2,028,926	2,276,784	-	534,739	13,167,893
Illinois Tool Works Inc.	1,350,000	-	4,887,030	6,174,959	7,410,625	766,558	198,450	20,787,622
Old Dominion Freight Line Inc.	774,023	-	1,975,247	-	7,744,570	46,780	37,213	10,577,833
Robert Half International Inc.	500,000	-	5,202,987	-	2,776,945	-	491,542	8,971,474
Union Pacific Corp.	1,225,000	-	6,300,127	4,200,039	2,581,700	47,311	169,642	14,523,819
Norfolk Southern Corp.	1,100,000	-	7,338,120	1,295,418	3,465,000	755,664	62,740	14,016,942
Westinghouse Air Brake Technologies Corporation	1,200,000	-	6,415,184	786,364	2,606,580	-	19,110	11,027,238
United Rentals	987,681	-	9,137,915	-	2,568,187	-	22,317	12,716,100
PACCAR Inc.	1,393,077	-	3,850,000	1,372,256	2,278,500	3,022,430	19,500	11,935,763
Huntington Ingalls Industries Inc.	1	-	4,399,947	-	2,750,000	503,926	60,192	7,714,066
Eaton Corp Plc	1,391,667	-	9,172,627	2,677,140	2,800,000	3,163,742	162,431	19,367,607

Lockheed Martin Corp.	1,742,173	-	10,783,715	-	4,049,200	-	1,536,123	18,111,211
The Boeing Co.	1,400,000	-	8,000,000	8,000,000	3,381,840	-	311,765	21,093,605
AMETEK Inc.	1,320,000	686,400	5,837,811	1,568,518	2,745,600	150,064	611,038	12,919,431
Keysight Technologies Inc.	1,000,000	-	1,058,182	-	2,216,156	249,447	42,625	18,566,410
TransDigm Group Inc.	1,200,000	173,812	-	12,798,804	1,626,188	-	5,685,700	21,484,504
Johnson Controls International plc	1,500,000	-	7,124,944	2,374,997	4,293,600	-	373,476	15,667,017
Deere & Co.	1,429,174	-	5,991,488	3,298,699	8,055,803	741,736	395,926	19,912,826
TE Connectivity Ltd.	1,200,000	-	5,006,119	5,208,994	2,903,400	-	397,343	14,715,856
Emerson Electric Co.	1,260,000	2,600,000	11,060,131	-	-	-	257,975	15,178,106
Rockwell Automation Inc.	1,163,900	-	6,300,606	2,700,018	748,970	-	74,210	10,987,704
Jacobs Engineering Group Inc.	1,411,154	-	12,000,106	-	1,170,154	-	34,107	14,615,521
L3Harris Technologies Inc.	1,500,000	-	8,287,958	2,750,012	2,750,000	-	409,779	15,697,749
Parker-Hannifin Corp.	1,387,500	-	5,800,687	4,282,828	3,780,697	3,044,860	151,597	18,448,169
A.O. Smith Corp.	1,000,000	-	1,386,088	1,385,968	2,917,000	-	208,926	6,897,982
CH Robinson Worldwide Inc.	1,066,346	-	5,924,530	-	3,225,000	-	174	10,233,276
JB Hunt Transport Services Inc.	937,115	-	6,042,085	-	1,786,000	-	36,681	8,801,881
Caterpillar Inc.	1,637,500	-	8,749,964	8,750,028	4,792,980	-	36,756	24,298,032
Quanta Services Inc.	1,150,000	-	7,170,873	-	2,384,813	-	261,531	10,967,217
Nordson Corporation	870	-	5,439,290	1,970,346	1,740,000	239,445	49,669	10,308,750
Generac Holdings Inc.	989,178	-	3,330,212	1,670,075	1,497,563	-	32,785	7,519,813
Howmet Aerospace Inc.	1,600,000	-	15,445,000	-	-	-	144	17,189,000
Trimble Inc.	882,692	-	10,533,714	-	2,535,632	-	4,783	13,956,821
Alaska Air Group Inc.	572,269	-	2,685,881	832,659	89,209	-	147,263	5,130,162
Cintas Corp.	1,000,000	-	4,316,592	506,307	1,850,000	-	104,201	7,777,100
Delta Air Lines Inc.	950	-	4,125,186	4,125,062	3,038,542	-	12,163	12,360,420
United Airlines Holdings	1,000,000	-	8,729,907	-	-	-	115,157	9,845,064
Expeditors International of Washington Inc.	100	-	2,896,946	-	10,026,358	-	3	13,026,304
Amphenol Corp.	1,355,000	-	-	7,522,140	4,065,000	-	150,557	13,092,697
FedEx Corp.	1,412,516	-	-	7,160,341	819,224	-	1,204,069	10,596,150
TOTAL (69 firms)	76,639,242	15,817,228	469,552,173	148,693,705	190,204,885	24,939,959	22,670,214	954,051,614
averages	1,110,714	229,235	6,805,104	2,154,981	2,756,593	361,449	328,554	13,826,835

MATERIALS	Salary	Bonus	Value of Stock Awards	Value of Option Awards	Non-Equity Incentive Plan Compensation	Change in Pension Value and Deferred Compensation Earnings	All Other Compensation	TOTAL
CF Industries Holdings Inc.	1,250,000	-	6,767,986	-	3,375,000	72,771	219,913	11,685,670
Vulcan Materials Co.	1,229,167	-	5,194,408	1,294,312	2,620,900	-	436,008	10,774,795
International Flavors & Fragrances Inc.	1,300,000	-	5,723,445	-	2,315,149	-	428,786	9,767,380
Martin Marietta Materials Inc.	1,275,000	-	8,485,027	-	2,275,000	2,873,669	30,891	14,939,587
Nucor Corp.	1,000,000	-	3,939,943	1,750,000	4,000,000	-	928,076	11,618,019
Packaging Corp of America	1,416,516	-	6,745,717	-	3,600,000	325,321	69,759	12,157,313
LyondellBasell Industries NV	1,575,000	-	9,793,762	3,309,208	4,082,400	16,967	233,696	19,011,033
Eastman Chemical Co.	1,319,904	-	9,781,398	2,601,291	3,458,250	172,210	465,808	17,798,861
DuPont de Nemours Inc.	1,000,000	-	9,274,863	2,200,006	2,269,500	-	362,617	15,106,986
Sealed Air Corp.	1,241,430	-	8,407,162	-	-	-	26,100	9,674,692
International Paper Co.	1,450,000	-	10,487,138	-	2,386,000	471,628	433,941	15,228,707
Ecolab Inc.	1,000,000	-	2,879,914	2,870,215	1,426,047	-	189,713	8,365,889
FMC Corp.	1,089,375	-	3,296,620	1,426,937	2,320,763	-	355,976	8,489,671
Freeport-McMoRan Inc.	1,766,667	-	8,483,475	1,335,040	3,569,400	3,163,533	793,779	19,111,894
The Sherwin-Williams Co.	1,368,231	-	5,895,615	4,496,806	3,284,000	-	799,108	15,843,760
PPG Industries Inc.	1,300,000	-	6,266,679	3,133,323	2,250,000	-	468,212	13,418,214
Avery Dennison Corp.	1,183,250	-	7,047,669	-	3,360,000	662,480	180,322	12,433,721
Albemarle Corp.	1,071,923	-	4,177,432	1,375,013	2,181,372	-	235,013	9,040,753
Ball Corp.	1,413,269	-	3,260,033	3,260,000	5,790,724	186,605	13,749	13,924,380
Celanese Corp.	1,180,000	-	8,649,886	-	2,641,548	-	99,558	12,570,992
Air Products & Chemicals Inc.	1,350,000	-	13,752,750	-	3,057,750	15,047	307,558	18,483,105
Linde Plc	1,586,250	-	10,764,948	5,044,977	5,282,213	8,450,000	297,644	31,426,032
The Mosaic Co.	1,238,750	-	7,919,369	-	2,708,899	-	429,993	12,297,011
Newmont Goldcorp Corp.	1,300,000	-	8,566,067	-	2,125,500	606,521	69,017	12,667,105
Amcor PLC	1,696,203	-	4,371,997	1,101,918	2,045,554	-	657,086	9,872,758
Dow Inc.	1,555,000	-	10,706,279	2,540,028	5,089,967	4,634,995	332,623	24,858,892
Corteva	1,058,261	-	4,500,010	3,000,008	2,576,700	274,151	5,455,298	16,864,428
Westrock Co.	1,220,250	-	7,591,297	-	2,328,123	-	436,600	11,576,270
TOTAL (28 firms)	36,434,446	-	202,730,889	40,739,082	82,420,759	21,925,898	14,756,844	399,007,918
averages	1,301,230	-	7,240,389	1,454,967	2,943,599	783,068	527,030	14,250,283

TECHNOLOGY	Salary	Bonus	Value of Stock Awards	Value of Option Awards	Non-Equity Incentive Plan Compensation	Change in Pension Value and Deferred Compensation Earnings	All Other Compensation	TOTAL
ServiceNow	1,000,000	-	22,984,959	139,242,879	2,571,699	-	2,500	165,802,037
CDW	925,000	-	2,750,029	2,823,088	2,430,900	-	14,886	8,943,903
Leidos Holdings	1,227,462	-	7,582,531	1,900,370	2,134,278	-	31,366	12,876,007
Salesforce.com Inc.	1,550,000	-	13,500,117	9,000,018	3,100,000	-	1,451,977	28,602,112
Fortinet Inc.	797,000	-	6,235,385	6,145,875	1,024,951	-	-	14,203,211
Arista Networks Inc.	300,000	-	15,384,500	-	300,000	-	9,132	15,993,632
VeriSign Inc.	925,000	-	7,749,845	-	1,443,000	-	468	10,118,313
NXP Semiconductors NV	1,181,800	-	16,314,944	-	3,331,790	-	83,358	20,911,892
Enphase Energy Inc.	450,000	-	18,311,000	-	256,050	-	2,112	19,019,162
Cadence Design Systems Inc.	975,000	-	7,154,737	-	1,950,000	322,091	175,813	10,577,641
Akamai Technologies Inc.	1	-	11,951,573	-	-	-	-	11,951,574
NVIDIA Corp.	996,216	-	18,660,407	-	4,000,000	-	81,038	23,737,661
Autodesk Inc.	1,000,452	-	21,095,069	-	-	-	-	22,095,521
Advanced Micro Devices Inc.	1,076,317	-	19,929,804	5,161,344	3,190,000	-	140,642	29,498,107
Fiserv Inc.	1,320,000	-	16,120,519	-	2,683,000	-	261,689	20,385,208
Mastercard Inc.	1,000,000	-	9,627,904	2,300,019	2,970,000	-	222,132	16,120,055
Global Payments Inc.	1,000,000	-	16,804,925	3,625,029	1,750,000	-	138,439	23,318,393
Texas Instruments Inc.	1,376,667	4,125,000	6,500,124	6,500,005	275,333	-	418,282	19,195,411
PayPal Holdings Inc.	1,122,115	-	29,920,381	-	625,000	-	402,857	32,070,353
Activision Blizzard Inc.	718,029	-	-	-	-	-	108,520	826,549
International Business Machines Corp.	1,500,000	-	12,605,507	-	2,940,000	-	505,452	17,550,959
Corning Inc.	1,492,648	-	8,023,645	-	10,820,127	-	429,612	20,766,032
Cognizant Technology Solutions Corp.	1,230,262	-	14,097,855	-	4,086,930	-	272,238	19,687,285
Fidelity National Information Services Inc.	1,200,000	-	14,339,482	4,250,002	4,661,805	-	572,482	25,023,771
FleetCor Technologies Inc.	1,000,000	-	-	55,556,000	1,335,000	-	32,473	57,923,473
ANSYS Inc.	825,000	309,375	15,431,959	-	1,666,345	-	27,955	18,260,634
Intel Corp.	1,098,500	1,750,000	140,433,000	29,108,400	5,113,900	685,000	401,600	178,590,400
Juniper Networks Inc.	1,000,000	-	9,774,868	-	1,085,000	-	10,422	11,870,290
Motorola Solutions Inc.	1,250,000	-	10,501,466	4,916,617	2,940,000	6,602	365,954	19,980,639
MSCI Inc	1,000,000	-	7,499,592	-	1,816,100	-	22,620	10,338,312
Adobe Inc.	1,019,231	-	32,499,671	-	2,180,000	-	429,823	36,128,725
HP Inc.	1,200,000	-	10,558,022	4,107,368	4,440,000	-	428,416	20,733,806
Broadcom Inc.	1,200,000	-	54,056,808	-	5,400,000	-	46,819	60,703,627
Synopsys Inc.	540,000	-	5,250,326	1,750,009	2,430,000	-	6,150	9,976,485
Hewlett Packard Enterprise Co.	1,225,000	-	13,118,823	-	4,005,970	16,091	686,531	19,052,415
Skyworks Solutions Inc.	1,070,223	-	11,612,745	-	3,440,000	-	27,453	16,150,421
Analog Devices Inc.	1,050,000	-	8,591,204	17,118,004	3,981,115	-	84,000	30,824,323
F5 Networks Inc.	875,000	-	9,406,895	-	1,183,431	-	4,400	11,469,726
QUALCOMM Inc.	1,032,902	-	16,000,168	-	3,092,000	-	513,854	20,638,924
Applied Materials Inc.	1,049,808	-	31,710,469	-	2,039,400	-	465,882	35,265,559
Apple Inc.	3,000,000	-	82,347,835	-	12,000,000	-	1,386,559	98,734,394
Accenture Plc	1,475,000	-	25,490,513	-	5,900,000	-	835,595	33,701,108
Micron Technology Inc.	1,409,893	-	23,499,965	-	3,435,275	-	495,676	28,840,809

Intuit Inc.	1,100,000	-	17,489,821	6,375,036	2,200,000	-	10	27,174,857
Cisco Systems Inc.	1,390,000	-	24,866,549	-	2,941,796	-	85,591	29,283,936
Microsoft Corp.	2,500,000	-	42,269,560	-	10,066,500	-	11,025	54,946,310
Western Digital Corp.	1,250,000	-	28,860,629	-	2,017,559	-	915	32,137,338
KLA-Tencor Corp.	997,115	-	15,296,189	-	2,953,846	-	1,321,475	20,568,625
Oracle Corp.	950	-	-	129,275,000	7,799,355	-	167,677	138,192,032
Lam Research Corp.	1,084,615	-	10,079,176	2,669,527	3,096,188	-	1,165	16,941,156
Broadridge Financial Solutions Inc.	9,625	-	3,701,756	3,655,242	1,694,379	-	54,351	10,068,228
Automatic Data Processing Inc.	1,164,200	-	9,813,507	5,799,969	3,627,600	-	421,816	20,827,092
Seagate Technology Plc	1,100,008	-	8,095,464	2,019,842	1,987,604	-	7,400	13,210,318
Paychex Inc.	1,063,461	-	5,653,529	1,870,969	2,418,750	-	18,317	11,025,026
NetApp Inc.	991,346	-	15,745,686	-	2,133,037	-	13,482	18,883,551
Microchip Technology Inc.	565,862	46,006	10,538,056	-	1,595,494	-	14,249	12,759,667
DXC Technology Co.	1,365,064	-	25,087,727	-	2,025,000	-	238,889	28,716,680
Qorvo Inc.	920,332	-	7,649,886	-	1,491,674	-	10,792	10,072,684
Gartner Inc.	928,631	-	7,564,661	3,241,991	2,245,063	-	115,822	14,096,168
ON Semiconductor Corporation	950,000	285,000	9,413,592	-	2,137,500	-	39,470	12,825,562
Teledyne Technologies Incorporated	943,077	-	792,086	1,509,491	1,884,600	1,425,804	12,000	6,567,058
EPAM Systems Inc.	687,500	-	2,000,063	1,999,961	1,234,000	-	-	5,921,524
Monolithic Power Systems Inc.	711,923	-	13,782,908	-	5,760,000	-	-	20,254,831
Paycom Software Inc.	753,701	-	-	-	1,479,630	-	725,079	2,958,410
SolarEdge Technologies Inc.	888,765	-	4,299,750	1,130,335	905,566	-	136,920	7,361,336
Teradyne Inc.	975,000	809,544	6,287,870	680,028	2,129,400	-	72,871	10,954,713
PTC Inc.	880,962	-	10,350,834	-	1,646,033	-	9,287	12,887,116
Gen Digital Inc.	885,577	-	11,437,131	-	1,181,250	-	13,547	13,517,505
Tyler Technologies Inc.	525,000	-	3,015,250	2,037,325	-	-	12,430	5,590,005
Zebra Technologies Corporation	1,200,000	-	9,250,404	-	2,912,760	-	226,452	13,589,616
Ceridian HCM Holding Inc.	775,000	-	2,649,979	6,749,995	400,000	-	51,727	10,626,701
Garmin Ltd.	1,200,000	307	3,003,686	-	-	-	34,348	4,238,341
Moody's Corp.	900,000	-	5,120,156	1,279,993	2,210,000	225,904	14,104	9,750,157
S&P Global Inc.	1,000,000	-	9,750,000	-	4,615,000	-	778,770	16,143,770
FactSet Research Systems Inc.	692,500	-	2,250,063	2,250,035	1,400,000	-	12,400	6,604,998
Visa Inc.	1,555,978	-	14,782,648	5,325,013	6,200,000	-	239,963	28,103,602
Jack Henry & Associates Inc.	840,000	-	7,557,777	-	1,345,365	-	15,250	9,758,392
Equifax Inc.	1,500,000	-	8,079,933	2,020,085	3,600,000	-	865,557	16,065,575
Verisk Analytics Inc.	1,000,000	-	7,875,006	2,625,006	1,140,000	98,355	57,954	12,796,321
CoStar Group Inc.	905,769	-	16,703,568	2,007,200	2,405,000	-	142,804	22,164,341
Roper Technologies Inc.	1,000,000	-	12,946,468	4,425,029	3,000,000	-	160,558	21,532,055
MarketAxess Holding Inc.	500,000	-	2,575,252	856,932	1,800,000	-	10,000	5,742,184
TOTAL (78 firms)	81,569,008	5,575,232	1,058,648,232	185,682,752	208,223,394	2,094,847	17,017,800	1,559,905,622
averages	1,045,757	71,477	13,572,413	2,380,548	2,669,531	26,857	218,177	19,998,790

UTILITIES	Salary	Bonus	Value of Stock Awards	Value of Option Awards	Non-Equity Incentive Plan Compensation	Change in Pension Value and Deferred Compensation Earnings	All Other Compensation	TOTAL
CMS Energy Corp.	1,050,000	-	4,601,980	-	953,925	78	265,085	6,871,068
NiSource Inc.	1,025,000	-	6,953,903	-	1,470,840	-	86,039	9,535,782
Alliant Energy Corp.	1,024,904	-	3,776,810	-	1,511,747	3,746,424	389,375	10,449,260
Ameren Corp.	1,300,000	-	5,572,210	-	2,224,000	553,142	158,484	9,807,836
Public Service Enterprise Group Inc.	1,421,400	-	9,100,065	-	3,621,700	-	65,509	14,208,674
CenterPoint Energy Inc.	1,425,000	-	33,359,999	-	2,116,125	-	908,686	37,809,810
FirstEnergy Corp.	1,076,236	-	5,755,252	-	1,977,256	1,876,204	29,114	10,714,062
Consolidated Edison Inc.	1,250,000	-	5,551,295	-	1,967,200	1,500,611	73,092	10,342,198
American Electric Power Company Inc.	1,515,808	-	9,976,149	-	2,850,000	461,732	247,526	15,051,215
Dominion Energy Inc.	1,225,000	-	3,250,001	-	2,288,232	1,235,648	162,202	8,161,083
WEC Energy Group Inc.	1,102,727	-	2,331,500	910,166	2,846,308	11,157,354	133,816	18,481,871
Xcel Energy Inc.	931,424	-	6,300,028	-	992,149	79,491	47,272	8,350,364
Exelon Corp.	1,303,595	-	11,000,019	-	2,169,124	1,071,663	212,977	15,757,378
PPL Corp.	1,132,492	-	5,111,866	-	2,654,619	2,361,092	96,412	11,356,481
Sempra Energy	1,350,000	-	6,083,529	2,833,344	3,952,300	9,954,196	502,613	24,675,982
NextEra Energy Inc.	1,560,000	-	14,166,104	3,225,000	4,992,000	1,023,668	369,164	25,335,936
Duke Energy Corp.	1,390,500	-	11,196,187	-	3,288,915	277,111	298,523	16,451,236
Pinnacle West Capital Corp.	1,100,000	-	4,079,762	-	1,790,074	1,099,555	30,766	8,100,157
American Water Works Company Inc.	994,616	-	3,999,969	-	1,266,022	1,017,097	120,424	7,398,128
Eversource Energy	980,769	1,250,000	7,306,661	-	1,487,500	-	113,152	11,138,082
The Southern Co.	1,582,692	-	14,902,407	-	2,842,400	1,689,005	227,055	21,243,559
Eversource Energy	1,004,424	-	1,441,650	-	2,250,000	1,705,782	65,222	6,467,078
Entergy Corp.	1,289,538	-	7,383,591	1,602,462	2,457,000	4,178,300	134,853	17,045,744
Edison International	1,325,249	-	3,823,832	3,823,755	2,074,800	3,289,304	274	14,364,340
DTE Energy Co.	1,276,923	-	6,524,979	-	2,032,700	1,073,599	220,076	11,128,277
NRG Energy Inc.	1,369,385	-	7,694,426	-	1,707,225	-	83,188	10,854,224
PG&E Corporation	1,344,643	6,600,000	41,175,002	-	1,487,578	18,198	57,305	51,198,471
AES Corporation	1,241,000	-	10,623,105	-	2,233,800	-	281,285	14,379,190
Atmos Energy Corp.	976,923	-	2,523,433	-	1,325,782	-	13,424	4,839,562
TOTAL (29 firms)	35,570,248	7,850,000	255,565,714	12,394,727	64,831,321	49,369,254	5,392,913	431,517,048
averages	1,226,560	270,690	8,812,611	427,404	2,235,563	1,702,388	185,963	14,879,898

	Salary	Bonus	Value of Stock Awards	Value of Option Awards	Non-Equity Incentive Plan Compensation	Change in Pension Value and Deferred Compensation Earnings	All Other Compensation	TOTAL
GRAND TOTAL (490 firms)	573,656,798	143,153,101	4,414,955,220	989,963,946	1,511,328,643	163,667,420	176,864,884	8,004,827,970
Average over 490 firms								16,336,384
Median over 490 firms								14,493,390
Composition in %	7,17	1,79	55,15	12,37	18,88	2,04	2,21	100,00