



CEO PAY IN 2012 WAS EXTRAORDINARILY HIGH RELATIVE TO TYPICAL WORKERS AND OTHER HIGH EARNERS

BY LAWRENCE MISHEL AND NATALIE SABADISH

The 1980s, 1990s, and 2000s were prosperous times for top U.S. executives, especially relative to other wage earners and even relative to other very high wage earners (those earning more than 99.9 percent of all wage earners). Executives constitute a larger group of workers than is commonly recognized, and the extraordinary pay increases received by chief executive officers of large firms had spillover effects in pulling up the pay of other executives and managers.¹ Consequently, the growth of CEO and executive compensation overall was a major factor driving the doubling of the income shares of the top 1.0 percent and top 0.1 percent of households from 1979 to 2007 (Bivens and Mishel 2013). Income growth since 2007 has been very unbalanced as profits have reached

record highs and, correspondingly, the stock market has boomed while the wages of most workers (and their families' incomes) have declined over the recovery (Mishel et al. 2012, Mishel 2013). It is useful to track CEO compensation to assess how well this group is doing in the recovery, especially since this is an early indication of how well other top earners and high-income households are faring through 2012. This paper presents CEO compensation trends through 2012 and finds:

Trends in CEO compensation last year:

- Average CEO compensation was \$14.1 million in 2012, using a measure of CEO pay that covers CEOs of the top 350 firms and includes the value of stock

options exercised in a given year (“options realized”), up 12.7 percent since 2011 and 37.4 percent since 2009. This is our preferred measure.

- Average CEO compensation using a measure that covers CEOs of the top 350 firms and includes the value of stock options granted to an executive (“options granted”) was \$10.7 million in 2012, 7.1 percent lower than in 2011 though still 9.1 percent greater than in 2009. Firms apparently pared back the value of new options granted because CEOs fared so well by cashing in options as stock prices grew.

Longer-term trends in CEO compensation:

- From 1978 to 2012, CEO compensation measured with options realized increased about 875 percent, a rise more than double stock market growth and substantially greater than the painfully slow 5.4 percent growth in a typical worker’s compensation over the same period.
- Using the same measure of options-realized CEO pay, the CEO-to-worker compensation ratio was 20.1-to-1 in 1965 and 29.0-to-1 in 1978, grew to 122.6-to-1 in 1995, peaked at 383.4-to-1 in 2000, and was 272.9-to-1 in 2012, far higher than it was in the 1960s, 1970s, 1980s, or 1990s.
- Measured with options granted, CEOs earned 18.3 times more than typical workers in 1965 and 26.5 times more in 1978; the ratio grew to 136.8-to-1 in 1995 and peaked at 411.3-to-1 in 2000. In 2012, CEO pay was 202.3 times more than typical worker pay, far higher than it was in the 1960s, 1970s, 1980s, or 1990s.

CEO compensation relative to other high earners:

- Over the last three decades, CEO compensation grew far faster than that of other highly paid workers, those earning more than 99.9 percent of other wage earners. CEO compensation in 2010 was 4.70 times greater than that of the top 0.1 percent of wage

earners, a ratio 1.62 higher (a wage gain roughly equivalent to that of 1.6 high wage earners) than the 3.08 ratio that prevailed over the 1947–1979 period.

- Also over the last three decades, CEO compensation increased further relative to other very high wage earners than the wages of college graduates grew relative to those of high school graduates.
- These findings show that CEO compensation growth reflects not just the increased market value of highly paid professionals in a competitive market for skills (the “market for talent”) but the presence of substantial rents embedded in executive pay. Consequently, if CEOs earned less or were taxed more there would be no adverse impact on output or employment.

CEO compensation trends

Table 1 presents trends in CEO compensation from 1965 to 2012.² The data are for two different measures of compensation of CEOs in large firms. The measures differ only in their treatment of stock options: one incorporates stock options according to how much the CEO *realized* in that particular year by exercising stock options available (“options realized”), and the other incorporates the value (the Black Scholes value) of stock options *granted* that year (“options granted”). The options-realized measure reflects what CEOs report as their Form W-2 wages for tax reporting purposes and is what they actually earned in a given year. This is the measure most frequently used by economists.³ The options-granted measure (using the value of stock options) is sometimes referred to as “estimated pay” because firms do not know the ultimate value of the options at the time they are granted. In addition to stock options, each measure includes salary, bonuses, restricted stock grants, and long-term incentive payouts. Full methodological details for the construction of these CEO compensation measures and benchmarking to other studies can be found in Mishel and Sabadish (2013).

TABLE 1

CEO compensation, CEO-to-worker compensation ratio, and benchmarks, 1965–2012 (2012 dollars)

Year	CEO annual compensation (thousands)*		Worker annual compensation (thousands)		Stock Market (adjusted to 2012)		CEO-to-worker compensation ratio***	
	Options realized	Options granted	Private-sector production/nonsupervisory workers	Firms' industry**	S&P 500	Dow Jones	Options realized	Options granted
1965	807	765	39.3	n/a	562	5,805	20.1	18.3
1973	1,054	1,000	46.7	n/a	496	4,268	22.1	20.1
1978	1,442	1,368	48.6	n/a	310	2,652	29.0	26.5
1989	2,685	2,547	44.9	n/a	578	4,488	58.5	53.3
1995	5,684	6,303	44.5	50.8	810	6,731	122.6	136.8
2000	19,880	20,386	46.8	53.1	1,903	14,298	383.4	411.3
2007	18,274	12,739	49.2	53.2	1,636	14,593	351.3	244.1
2009	10,243	9,838	51.5	56.5	1,015	9,512	193.2	181.6
2010	12,286	11,225	52.0	57.2	1,200	11,235	227.9	205.9
2011	12,484	11,558	51.5	56.8	1,294	12,206	231.8	214.6
2012	14,074	10,735	51.2	56.4	1,379	12,965	272.9	202.3
Percent change					Change in ratio			
1965–1978	78.7%	78.7%	23.7%	n/a	-44.8%	-54.3%	8.9	8.1
1978–2000	1,279%	1,390%	-3.6%	n/a	513%	439%	354.4	384.9
2000–2012	-29.2%	-47.3%	9.4%	6.3%	-27.5%	-9.3%	-110.5	-209.0
1978–2012	876%	685%	5.4%	n/a	344%	389%	214.4	149.0

* The "Options realized" compensation series includes salary, bonuses, restricted stock grants, options exercised, and long-term incentive payouts for CEOs at the top 350 firms ranked by sales. The "Options granted" compensation series includes salary, bonus, restricted stock grants, options granted, and long-term incentive payouts for CEOs at the top 350 firms ranked by sales.

** Annual compensation of the workers in the key industry of the firms in the sample.

*** Based on averaging specific firm ratios and not the ratio of averages of CEO and worker compensation.

Source: Authors' analysis of data from Compustat's ExecuComp database, Federal Reserve Economic Data (FRED) from the Federal Reserve Bank of St. Louis, the Current Employment Statistics program, and the Bureau of Economic Analysis NIPA tables.

CEO compensation reported in Table 1, as well as throughout the rest of the report, is the average compensation of the CEOs in the 350 publicly owned firms (i.e., firms that sell stock on the open market) with the largest revenue each year. For comparison, Table 1 also presents the annual compensation (wages and benefits of a full-time, full-year worker) of a private-sector production/nonsupervisory worker (a group covering more than 80 percent of payroll employment), allowing us to compare CEO compensation with that of workers overall. From 1995 onward, the table identifies the average annual compensation of the production/nonsupervisory

workers in the key industries of the firms included in the sample. We take this compensation as a proxy for the pay of typical workers in these particular firms.

The modern history of CEO compensation is as follows, starting in the 1960s. Even though the stock market (as measured by the Dow Jones Industrial Average and S&P 500 Index and shown in Table 1) fell by roughly half between 1965 and 1978, both measures of CEO pay increased by 78.7 percent. Average worker pay saw relatively strong growth over that period (relative to subsequent periods, not relative to CEO pay or pay for oth-

ers at the top of the wage distribution). Annual worker compensation grew by 23.7 percent from 1965 to 1978, only about a third as fast as CEO compensation growth over that period.

CEO compensation grew strongly throughout the 1980s but exploded in the 1990s and peaked in 2000, increasing by more than 200 percent just between 1995 and 2000. Chief executive pay peaked at around \$20 million in 2000, a growth of 1,279 percent (options realized) or 1,390 percent (options granted) from 1978. This increase even exceeded the growth of the booming stock market, the value of which increased 513 percent as measured by the S&P 500 or 439 percent as measured by the Dow Jones Industrial Average from 1978 to 2000. In stark contrast to both the stock market and CEO compensation growth, private-sector worker compensation declined a startling 3.6 percent over the same period.

The fall in the stock market in the early 2000s led to a substantial paring back of CEO compensation, but by 2007 (when the stock market had mostly recovered) the options-realized measure of CEO compensation returned close to its 2000 level. **Figure A** shows how the options-realized metric fluctuates in tandem with the stock market as measured by the S&P 500 Index, confirming that CEOs tend to cash in their options when stock prices are high. The financial crisis in 2008 and the accompanying stock market tumble knocked CEO compensation down by 44 percent (options realized) and 23 percent (options granted) by 2009. By 2012 the stock market had recouped much of the ground lost in the downturn and, not surprisingly, CEO compensation with realized options had also made a strong recovery. In 2012, average CEO compensation measured with options realized was \$14.1 million, up 12.7 percent since 2011 and 37.4 percent since 2009. CEO compensation with options realized in 2012 remains below the peak earning years of 2000 and 2007 but, as we show below, remains far above the pay levels of the mid-1990s and much farther above CEO compensation in preceding decades.

CEO compensation with options granted was \$10.7 million in 2012 and actually fell 7.1 percent from the 2011 level though was still 9.1 percent greater than in 2009 and remained roughly 16 percent below the 2007 level. CEO pay experts report that firms set a target for the earnings of their CEOs, and when the stock market is rising, they grant fewer options because they expect the CEOs to do well cashing in options already granted. In other words, when CEOs do extremely well in the current year by exercising options when stock prices have risen, firms pare back the value of options granted.

Over the entire period from 1978 to 2012, CEO compensation measured with options realized increased about 875 percent, a rise more than double stock market growth and substantially greater than the painfully slow 5.4 percent growth in a typical worker's compensation over the same period.

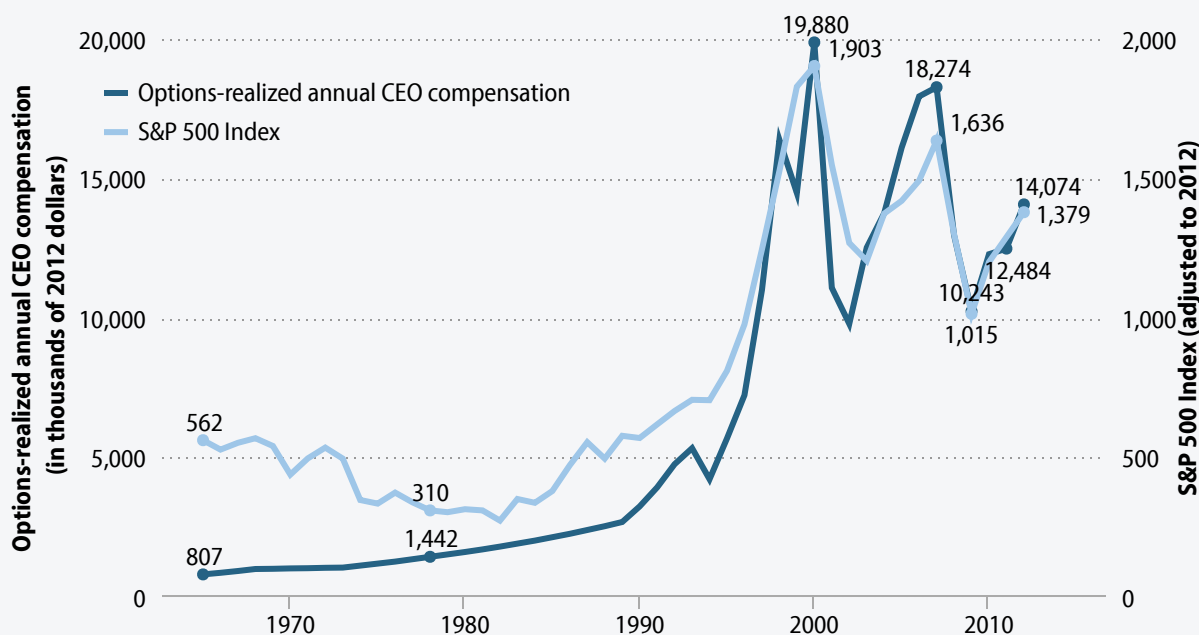
It is interesting to note that growth in CEO pay in 2012, measured by the options-realized metric, was not driven by large increases in pay for just a few executives or just those with the highest pay. **Figure B** shows the growth in options-realized pay when compensation is ranked and computed by CEO compensation fifths. Although pay increased more at the top of the distribution, CEO compensation rose across the board.

The increase in CEO pay over the past few years reflects improving market conditions driven by macroeconomic developments and a general rise in profitability. For most firms, corporate profits continue to improve and corporate stock price is moving accordingly. It seems evident that individual CEOs are not responsible for this broad improvement in profits in the past few years, but they clearly are benefitting from it.

This analysis makes it clear that the economy is recovering for some Americans, but not for most. The stock market and corporate profits have rebounded following the Great Recession, but the labor market remains very sluggish. Those at the top of the income distribution,

FIGURE A [VIEW INTERACTIVE on epi.org](#)

Options-realized CEO compensation and the S&P 500 Index, 1965–2012



Note: This figure uses the "Options realized" compensation data series which includes salary, bonuses, restricted stock grants, options exercised, and long-term incentive payouts for CEOs at the top 350 firms ranked by sales.

Source: Authors' analysis of data from Compustat's ExecuComp database, the Current Employment Statistics program, the Bureau of Economic Analysis NIPA tables, and Federal Reserve Economic Data (FRED) from the Federal Reserve Bank of St. Louis

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including many CEOs, are seeing a strong recovery while the average worker is still experiencing the detrimental effects of a stagnant labor market. Compensation for private-sector workers fell 0.5 percent over the last year and remains below the 2009 level.

Trends in the CEO-to-worker compensation ratio

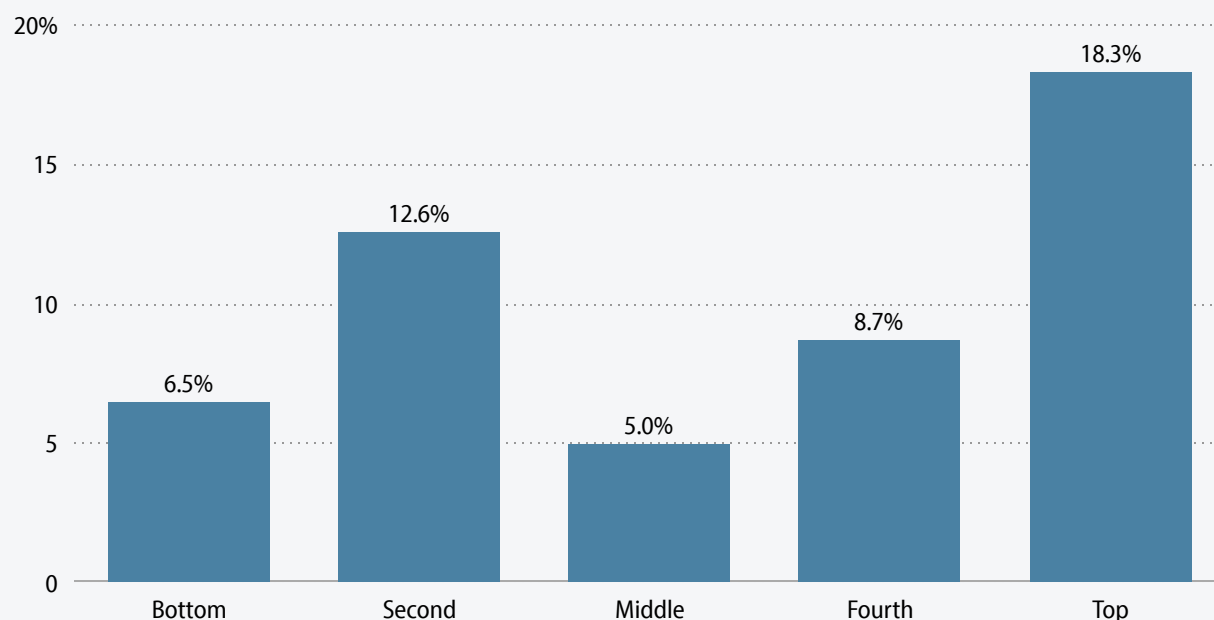
Table 1 also presents the trend in the ratio of CEO-to-worker compensation to illustrate the increased divergence between CEO and worker pay over time. This overall ratio is computed in two steps. The first step is to construct, for each of the largest 350 firms, the ratio of the CEO's compensation to the annual compensation of workers in the key industry of the firm (data on the pay of workers in any particular firm are not available). The second step is to average that ratio across all the firms.

The last two columns in Table 1 are the resulting ratios in select years. The trends prior to 1995 are based on the changes in average CEO and private-sector production/nonsupervisory worker compensation. The year-by-year trends are presented in **Figure C**.

Depending on the CEO compensation measure, U.S. CEOs of major companies earned 20.1 or 18.3 times more than a typical worker in 1965; this ratio grew to 29.0-to-1 or 26.5-to-1 in 1978 and 58.5-to-1 or 53.3-to-1 by 1989 and then surged in the 1990s to hit 383.4-to-1 or 411.3-to-1 by the end of the recovery in 2000. The fall in the stock market after 2000 reduced CEO stock-related pay (e.g., options) and caused CEO compensation to tumble until 2002 and 2003. CEO compensation recovered to a level of 351.3 times worker pay by 2007, almost back to its 2000 level using the

FIGURE B [VIEW INTERACTIVE on epi.org](#)

Real options-realized CEO compensation growth, by CEO pay fifth, 2011–2012



Note: This figure uses the "Options realized" compensation data series which includes salary, bonuses, restricted stock grants, options exercised, and long-term incentive payouts for CEOs at the top 350 firms ranked by sales.

Source: Authors' analysis of data from Compustat's ExecuComp database

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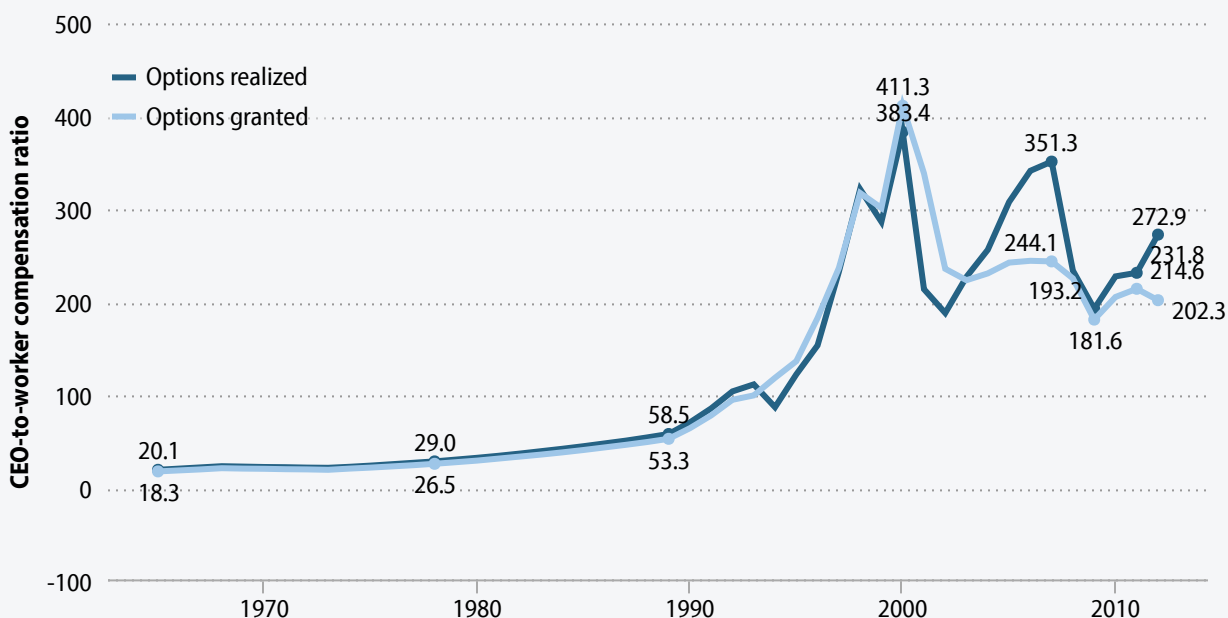
option-realized metric. The CEO-to-worker compensation ratio based on options-granted, however, returned only to 244.1-to-1 in 2007, still far below its height in 2000 (yet still substantially higher than the 1995 ratio of 136.8). The financial crisis in 2008 and accompanying stock market decline reduced CEO compensation after 2007–2008, as discussed above, and the CEO-to-worker compensation ratio fell in tandem. By 2012 the stock market had recouped much of the value it lost following the financial crisis. Likewise, CEO compensation has grown from its 2009 low, and the CEO-to-worker compensation ratio in 2012 had recovered to 272.9-to-1 or 202.3-to-1, depending on the measurement of options.

CEO pay relative to other highly paid workers

CEO compensation has grown a great deal but so has pay of other high-wage earners. To some analysts this suggests that the dramatic rise in CEO compensation was driven largely by the demand for the skills of CEOs and other highly paid professionals. This interpretation, then, is that CEO compensation is being set by the market for "skills" and is taken as evidence that rising CEO compensation is not due to managerial power and rent-seeking behavior (Bebchuk and Fried, 2004). One prominent example of the "it's other professions, too" argument comes from Kaplan (2012a, 2012b). For instance, in the prestigious 2012 Martin Feldstein Lecture, Kaplan claimed:

FIGURE C [VIEW INTERACTIVE on epi.org](#)

CEO-to-worker compensation ratio, with options granted and options realized, 1965–2012



Note: This figure uses the "Options granted" compensation data series which includes salary, bonuses, restricted stock grants, options granted, and long-term incentive payouts for CEOs at the top 350 firms ranked by sales. This figure also uses the "Options realized" compensation data series which includes salary, bonuses, restricted stock grants, options exercised, and long-term incentive payouts for CEOs at the top 350 firms ranked by sales.

Source: Authors' analysis of data from Compustat's ExecuComp database, the Current Employment Statistics program, and the Bureau of Economic Analysis NIPA tables

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Over the last twenty years, then, public company CEO pay relative to the top 0.1 percent has remained relatively constant or declined. These patterns are consistent with a competitive market for talent. They are less consistent with managerial power. Other top income groups, not subject to managerial power forces, have seen similar growth in pay. (Kaplan 2012 a, 4)

And in a follow-up paper for the CATO Institute, published as a NBER working paper, Kaplan expanded this point further:

The point of these comparisons is to confirm that while public company CEOs earn a great deal, they are not unique. Other groups with similar backgrounds—private company executives,

corporate lawyers, hedge fund investors, private equity investors and others—have seen significant pay increases where there is a competitive market for talent and managerial power problems are absent. Again, if one uses evidence of higher CEO pay as evidence of managerial power or capture, one must also explain why these professional groups have had a similar or even higher growth in pay. It seems more likely that a meaningful portion of the increase in CEO pay has been driven by market forces as well. (Kaplan 2012b, 21)

Bivens and Mishel (2013) address the larger issue of the role of CEO compensation in generating income gains at the very top and conclude that there are substantial rents embedded in executive pay, concluding that CEO pay

TABLE 2

Growth of relative CEO and college wages, 1979–2010

	Ratio			Log ratio		
	CEO compensation to:		College to:	CEO compensation to:		College to:
	Top 0.1% households	Top 0.1% wage earners	High school hourly wages	Top 0.1% households	Top 0.1% wage earners	High school wage earners
1979	1.18	3.16	1.40	0.164	1.151	0.338
1989	1.14	2.55	1.57	0.128	0.936	0.454
1993	1.56	2.95	1.63	0.443	1.083	0.488
2000	2.90	7.53	1.75	1.063	2.019	0.557
2007	1.49	4.23	1.76	0.396	1.442	0.568
2010	2.06	4.70	1.77	0.725	1.548	0.574
<i>Change</i>						
1979–2007	0.31	1.07	0.36	0.23	0.29	0.23
1979–2010	0.89	1.54	0.37	0.56	0.40	0.24
1989–2010	0.93	2.15	0.20	0.60	0.61	0.12

Source: Authors' analysis of Kaplan (2012b) and Mishel et al. (2012, Table 4.8)

gains are not simply the result of a competitive market for talent. We draw on that analysis to show that CEO compensation grew far faster than compensation of other highly paid workers over the last few decades, which suggests that the market for skills was not responsible for the rapid growth of CEO compensation. To reach this finding we employ Kaplan's own series on CEO compensation and compare it to the incomes of top households, as he does, but also compare it to a better standard, the wages of top wage earners.⁴ This analysis finds, contrary to Kaplan, that compensation of CEOs has far outpaced that of other highly paid workers.

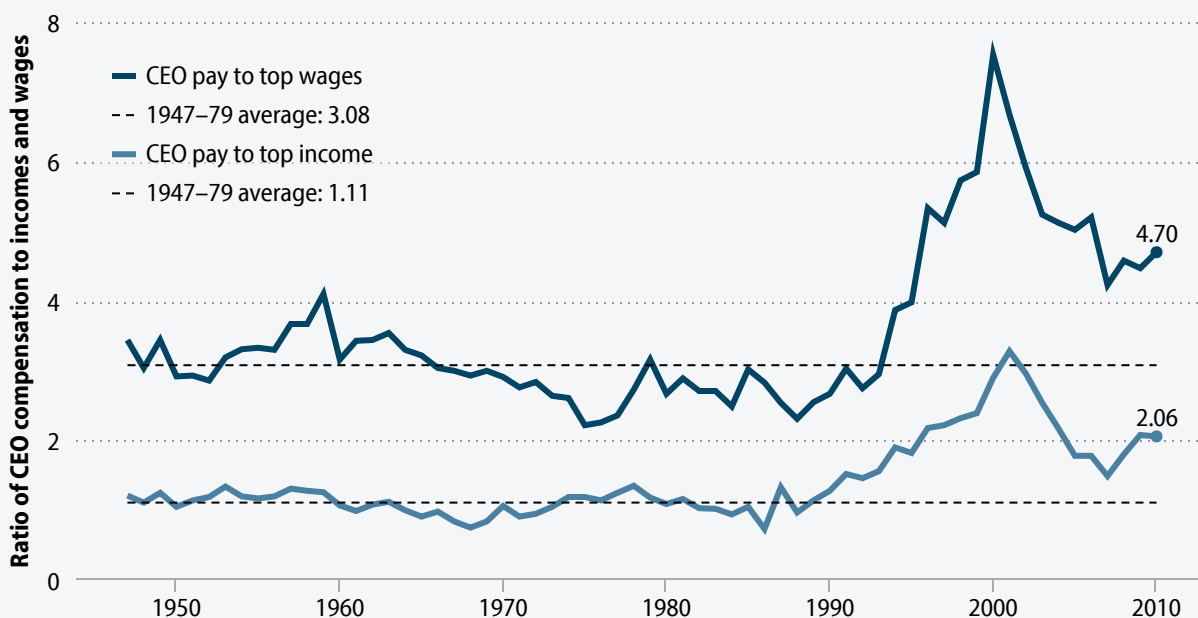
Table 2 presents the ratio of the average compensation of chief executive officers of large firms, the series developed by Kaplan, to two benchmarks. The first benchmark is the one Kaplan employs, the average *household income* of those in the top 0.1 percent developed by Piketty and Saez (2012). The second is the average annual earnings of the top 0.1 percent of *wage earners* based on a

series developed by Kopczuk, Saez, and Song (2010) and updated in Mishel et al. (2012). Each ratio is presented as a simple ratio and logged (to convert to a “premium,” the relative pay differential between one group and another). The wage benchmark seems the most appropriate one since it avoids issues of household demographics—changes in two-earner couples, for instance—and limits the income to labor income (excluding capital income). Both the ratios and log ratios clearly understate the relative wage of CEOs since executive pay is a non-trivial share of the denominator, a bias that has probably grown over time simply because CEO relative pay has grown.⁵ For comparison purposes Table 2 also shows the changes in the gross (not regression-adjusted) college-high school wage premium.

CEO compensation grew from 1.14 times the income of the top 0.1 percent of households in 1989 to 2.06 times top 0.1 percent household income in 2010, Kaplan's metric to measure CEO pay relative to that of other

FIGURE D [VIEW INTERACTIVE on epi.org](#)

Comparison of CEO compensation to top incomes and wages, 1947–2010



Note: "Top wages" are annual wages of the top 0.1% of wage earners. "Top income" is average annual income of the top 0.1% of households.

Source: Authors' analysis of Kaplan (2012b) and Mishel et al. (2012, Table 4.8)

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highly paid people. CEO pay relative to pay of top 0.1 percent wage earners grew even more, from 2.55 in 1989 to 4.70 in 2010, a rise (2.15) equal to the pay of more than two very high earners. The log ratio of CEO relative pay grew roughly 60 log points from 1989 to 2010 using either top household income or wage earners as the comparison.

Is this a large increase? Kaplan (2012a, 4) concluded that CEO relative pay "has remained relatively constant or declined." Kaplan (2012b, 14) finds that the ratio "remains above its historical average and the level in the mid-1980s." **Figure D** puts this in historical context by presenting the ratios displayed in Table 2 back to 1947. Kaplan's ratio of CEO pay to top household incomes in 2010 (2.06) was nearly double the historical (1947–1979) average of 1.11, a relative gain roughly equivalent to the total income of a top 0.1 percent household. CEO pay relative to top wage earners in 2010 was

4.70 in 2010, 1.62 higher than the historical average of 3.08 (a relative gain of the wages earned by more than 1.6 high wage earners). As the data in Table 2 show, the increase in the logged CEO pay premium since 1979, and particularly since 1989, far exceeded the rise in the college-high school wage premium which is widely and appropriately considered substantial growth. The data would show an even faster growth of CEO relative pay if Kaplan had built his historical series using the Frydman and Saks (2010) series for the 1980–94 period rather than the Hall and Leibman data.⁶

Presumably, CEO relative pay has grown further since 2010. As Table 1 showed, between 2010 and 2012, CEO compensation (options-realized) rose 14.6 percent while estimated pay (options granted) fell 4.4 percent. It is noteworthy that Kaplan (2012b) argues that realized pay is the preferred measure of performance.⁷ Unfortunately, data on the earnings of top wage earners for 2012 are

not yet available for a comparison to CEO compensation trends. However, CEO compensation grew faster than the wages of top 0.1 percent earners over 2010–11, with CEO compensation rising 1.6 percent (options realized) or 3.0 percent (options granted) and top 0.1 percent wages rising just 0.3 percent. If CEO pay growing far faster than that of other high earners is a test of the presence of rents, as Kaplan has suggested, then we would conclude that today's executives receive substantial rents.

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Endnotes

1. In 2007, according to the Capital IQ database, there were 38,824 executives in publicly held firms (tabulations kindly provided by Temple University professor Steve Balsam). There were 9,692 in the top 0.1 percent of wage earners.
2. The years chosen are based on data availability though where possible we chose cyclical peaks, years of low unemployment.
3. For instance, all of the papers prepared for the symposium on the top one percent, published in the *Journal of Economic Perspectives* (Summer 2013), used CEO pay measures with realized options. Bivens and Mishel (2013) follow this approach because the editors asked them to drop references to the options-granted measure.
4. We appreciate Steve Kaplan sharing his series with us.
5. Temple University professor Steve Balsam kindly provided tabulations of annual W-2 wages of executives in the top 0.1 percent from the Capital IQ database. The 9,692 executives in publicly owned firms that were in the top 0.1 percent of wage earners had average W-2 earnings of \$4,400,028. Using Mishel et al. (2012) estimates of top 0.1 wages, executive wages make up 13.3 percent of total top 0.1 percent wages. One can gauge the bias of including executives in the denominator by noting that the ratio of executive wages to all top 0.1 percent wages in 2007 was 2.14 but the ratio of executive wages to non-executive wages was 2.32. Unfortunately, we do not have data that permit an assessment of the bias in 1979 or 1989. We also do not have information on the number and wages of executives in privately held firms: Their inclusion would clearly indicate an even larger bias. The IRS reports there were nearly 15,000 corporate tax returns in 2007 of firms with assets exceeding \$250 million, indicating there are many more executives of large firms than just those in publicly held firms.
6. Kaplan (2012b, 14) notes that the Frydman and Saks series grew 289 percent, while the Hall and Leibman series grew 209 percent. He also notes that the Frydman and Saks series grows faster than that reported by Murphy (2012).
7. "Critics confuse estimated pay—what the boards give to the CEOs as estimated pay—and realized pay. The key question is whether CEOs who perform better earn more in realized pay." (Kaplan 2012b, 22).

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