

CEO compensation: US college student and adult perceptions

US college student and adult perceptions

Clarissa R. Steele

Department of Management, Kansas State University, Manhattan, Kansas, USA, and

Sarah Holtzen

Plaster School of Business, Missouri Southern State University, Joplin, Missouri, USA

93

Received 10 January 2023
Revised 1 May 2023
27 September 2023
15 March 2024
Accepted 1 May 2024

Abstract

Purpose – This study aims to understand differences in perceptions of CEO compensation between working adults and business students in the USA before and after reading CEO pay information.

Design/methodology/approach – Participants completed a survey about their perceptions of chief executive officer (CEO) compensation before and after reading CEO compensation information that included the median CEO-to-employee ratio and salary in 2021.

Findings – Working adults and business students had similar levels of concern about CEO compensation. Participants were more concerned with CEO compensation after reading information about CEO pay but also believed CEO pay was more justified, contrary to equity theory (Adams, 1965). Among the student and adult samples, women and noninvestors were more likely to have concerns about CEO compensation than other participants.

Practical implications – Individuals may not understand the components of CEO compensation, and the size of CEO salaries may be difficult to comprehend. Educators and the media should consider presenting CEO compensation information in a different way, for example, how long it takes a CEO to earn as much as an average employee does annually, for the public to understand how much more CEOs are paid than their employees.

Originality/value – Little research exists on CEO compensation understanding and concerns. This research opens the opportunity for future studies on CEO compensation, for example, that consider variables other than CEO pay (e.g. equity and other forms of compensation) and what individuals believe CEOs do that justifies their high compensation.

Keywords CEO compensation, Pay perceptions, Business students

Paper type Research paper

Introduction

Since the late 1970s, the topic of CEO compensation has been debated within the academy (e.g. Aguinis, Martin, Gomez-Mejia, O'Boyle, & Joo, 2018; Kaplan, 2008a, 2008b; Walsh, 2009) and popular press (e.g. Eavis, 2021; Edmans, 2017). For some, the total compensation awarded to CEOs (an average of \$24m in 2020; Mishel & Kandra, 2020) is seen as a “highly



© Clarissa R. Steele and Sarah Holtzen. Published in *Organization Management Journal*. Published by Emerald Publishing Limited. This article is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence maybe seen at <http://creativecommons.org/licenses/by/4.0/legalcode>

Organization Management Journal
Vol. 21 No. 3, 2024
pp. 93-105
Emerald Publishing Limited
e-ISSN: 1541-6518
p-ISSN: 2753-8567
DOI 10.1108/OMJ-01-2023-1700

controversial subject” (Donatiello, Larcker, & Tayan, 2016) that “has transcended the business world to become a societal concern” (Besharat, Whitler, & Kashmiri, 2023, p. 25). Others argue that CEO pay is no different than that of hedge fund investors, professional athletes and other “talented and fortunate groups” (Kaplan, 2008a, p. 6). The available evidence presents an interesting conundrum: why is CEO compensation seen as concerning for some, but not others? What role does business education play in the ongoing debate?

The current study investigates how perceptions of CEO compensation differ between a sample of business students and adults in the USA. We investigate if the presentation of accurate CEO compensation information affects perceptions about CEO pay compared to initial levels of reported pay knowledge, both about CEOs and the average worker.

Literature review

We review the literature on CEO compensation and equity theory to develop our hypotheses surrounding concerns, perceptions and estimates of CEO compensation and median worker pay.

CEO compensation and equity theory

CEO compensation has several unique features that may warrant concern for some but not others. Reported for the first time at 2:1 in 1960 (Khurana & Zelleke, 2009), the CEO-to-median-worker pay ratio increased to 40:1 during the 1980s (Khurana & Zelleke, 2009). By 2020, the average CEO could expect to earn 351 times that of the median worker (Mishel & Kandra, 2021). As the CEO-to-worker compensation ratio has “skyrocketed” (Mishel & Kandra, 2021), some have called into question if these large payouts are deserved. One reason for this concern is that the relationship between CEO compensation and firm performance is ambiguous. While one meta-analysis suggested that 5% of the variance in CEO compensation can be explained by firm performance (Tosi, Werner, Katz, & Gomez-Mejia, 2000), another found a significant, positive relationship (Van Essen, Otten, & Carberry, 2015), and others have found a negative relationship with different measures of firm performance (e.g. shareholder wealth, Cooper, Gulen, & Rau, 2016). In 2020, when one-fourth of companies worldwide experienced an average 50% drop in sales (World Bank, 2021), CEOs reported a 5% increase in compensation (Choe, 2021). As a result, some have called into question whether CEO compensation is justified, particularly when organizations report significant financial losses (for a recent highlight of this ongoing debate, see Aguinis et al., 2018).

Equity theory (Adams, 1965) provides a framework for understanding how individuals form perceptions of fairness. Through a series of mental calculations, individuals compare the ratio of their own inputs (e.g. effort) and outcomes (e.g. compensation) to those of a referent other (Adams, 1965). Perceptions of inequity arise when the perceived ratios are imbalanced (Adams, 1965). For example, Kaplan (2008a) alludes to the requirements needed to perform the “increasingly difficult and less pleasant” job of CEO (p. 17). A handful of studies suggest individuals may overestimate a CEO’s level of effort and contributions (Bebchuk & Fried, 2004; McCall, 2004), skewing the accuracy of equity perceptions. Perceptions of CEO pay outcomes may also be inaccurate. For example, participants in a nationwide survey suggested a median annual compensation of \$1m for S&P 500 CEOs, a gross underestimation of the true average of \$10.3m (Larcker, Donatiello, & Tayan, 2016). One factor that may influence the accuracy of these perceptions is knowledge about compensation.

Compensation knowledge and perceptions of business students

Though inaccurate pay perceptions have been documented in several studies (e.g. Larcker et al., 2016; Smith, 2015), significantly less work has been dedicated to understanding how these perceptions form. One key group that has been overlooked is business students, who may have

more inaccurate perceptions than adults. First, adults are more likely to have direct experience with paid work. Wage and salary workers report an average tenure of 4.1 years with their current employer (US Bureau of Labor Statistics, 2020), which is roughly equivalent to the time needed to complete a four-year degree. Less time on the job for students may mean less knowledge about compensation, especially since a course in compensation and benefits is not a requirement for most business degrees.

Second, compensation knowledge relates to the marked differences in earnings between students and adults. Students earn less than adults, on average. In 2015, the real median personal income in the USA was \$33,000 (Proctor, Semega, & Kollar, 2016). That same year, full-time independent students earned \$13,880 (Urban Institute, 2015). Students also tend to overestimate their own earning potential postgraduation. Although the median salary for college graduates with less than five years' work experience is \$48,000, students expect to earn an average of \$60,000 upon graduation (Brown, 2021), with 17% expecting to earn more than \$85,000 (Business Wire, 2021).

Finally, choice of referent other may also explain why students hold less knowledge and relatively more inaccurate perceptions of CEO compensation and average worker pay. When making social comparisons, individuals select a focal person or "referent other" with whom they can compare inputs and outcomes (Adams, 1965). Individuals can select a variety of referents, such as other employees at different levels within the firm (for internal comparisons), employees outside the firm (for external comparisons; Kulik & Ambrose, 1992) and referent others who share other similar inputs such as the same level of education or similar age (Williams, McDaniel, & Nguyen, 2006). Given students' limited experience with paid work and that executives occupy a noticeably higher position in social networks, students may be less likely to choose CEOs as a referent other when making pay comparisons. In contrast, because of the variety of people that individual adults interact with through work, they often make upward, downward and lateral pay comparisons with a variety of referent others (Harris, Anseel, & Lievens, 2008). Furthermore, because most individuals rate their performance as above-average (Alicke, Klotz, Breitenbecher, Yurak, & Vredenburg, 1995), adults may select CEOs as a referent other for upward pay comparison purposes. Taken together, we hypothesize that:

- H1a.* Students are less knowledgeable about CEO pay and average worker pay when compared to adults.
- H1b.* Students hold less accurate perceptions of CEO pay and average worker pay when compared to adults.

Justification of CEO compensation

At the heart of the debate over whether CEO pay is justified is its equivocal relationship with performance. For many employees, when the organization performs poorly, their pay often stays the same or, less commonly, decreases (Fulmer & Li, 2022). For CEOs, evidence suggests their compensation increases even when organizational performance has declined (Antenucci, 2020). Particularly during times of economic crisis, individuals may wonder if CEOs are deserving of more compensation (e.g. Aguinis et al., 2018; Gelles, 2021). In line with equity theory (Adams, 1965), the more knowledge individuals have about the reality of CEO-to-worker compensation, the less fair CEO pay may seem. Therefore, we hypothesize that:

- H2.* Knowledge of CEO pay and average worker pay is negatively related to CEO pay justification, such that individuals with more knowledge will feel that CEO pay is less justified than those with less knowledge.

Concern with CEO compensation

Stemming from their inaccurate perceptions about compensation, students may also report that CEO compensation is less concerning than working adults do. For example, 70% of respondents in a survey by Larcker et al. (2016) reported CEO pay was a problem, despite underestimating CEO pay by 90% of its true value. Even when pay was underestimated, the majority of respondents still felt the amount was high enough to warrant concern. However, the same survey found lower-income respondents viewed CEO pay as less concerning, despite their more inaccurate estimates of CEO compensation at five percent (\$500,000) of its true value (Larcker et al., 2016).

Students may be less likely to select CEOs as a salient referent other, thus reporting that CEO compensation is less of a concern. If students do not have access to information about CEO pay or do not perceive CEOs as relevant other for comparison purposes, students may not view CEO compensation as a topic of concern. Thus, we hypothesize that:

H3. Students are less concerned about CEO pay when compared to adults.

Addition of accurate pay information

As business educators, we understand that one way to counteract inaccurate perceptions and increase knowledge is through the presentation of accurate information. In line with equity theory (Adams, 1965), individuals who perceive they are receiving proportionally smaller outcomes when compared to that of a referent other would be more likely to view the situation as inequitable or unfair. Similarly, when an individual reads information about a specific topic, that information becomes salient (Taylor & Thompson, 1982). Saliency makes individuals more likely to process the information, have more accurate information and update their beliefs (e.g. Lichand, Doria, Leal-Neto, & Fernandes, 2022). Thus, we hypothesize that:

H4. CEO pay knowledge affects perceptions of CEO compensation amounts for both students and adults, though the effect will be stronger for students (weaker for adults) as a result of having less (more) initial knowledge about CEO and average worker pay.

Methods

Participants were recruited through undergraduate students currently enrolled in a management course at one of two universities in the midwestern USA. In the first wave of data collection, students at *University 1* were asked to complete the online survey protocol, while students at *University 2* shared the survey link with three working adults. In the second wave of data collection, about two years later, students at *University 1* were asked to share the survey link with three working adults, while students at *University 2* asked working adults to complete the survey along with completing the survey themselves. Students at both institutions were offered extra credit for participation.

Of the entire sample of 73 students and 165 adults ($n = 238$), 52% identified as women, and the majority were Caucasian (82%). Nearly half of respondents held an associate's degree or less (45%). The majority worked full-(52%) or part-time (16%), with 34% being the primary breadwinner, while another 38% worked to contribute to their household's income. Although 43% of respondents reported household earnings of more than \$100,000 annually, three in 10 (31%) reported earning less than \$50,000. In the first wave of data collection, of those who were asked, 29% (14 of 48) reported that they or their family owned

a business. In the second wave of data collection, 33% (30 of 91) reported that they or their family owned a business or were a CEO.

Pretest. We asked a series of pretest items to capture participants' baseline values. Participants' initial level of *pay knowledge* was assessed by asking how knowledgeable they were about the pay of the average CEO and the average worker (1 = not at all knowledgeable, 5 = extremely knowledgeable). Participants were also asked to *estimate average CEO pay* and *average worker pay* (i.e. "How much do you think the average American CEO/worker is paid in annual compensation in US dollars? Please write a number between 1 and 1 billion."). Finally, *CEO pay concern* was measured through a single item: "How concerned are you that CEOs are paid much more than their employees?" (1 = not at all concerned, 5 = extremely concerned).

Experimental manipulation. Next, participants were presented with information (adapted from Marcec, 2021) that included the current ratio of CEO to median worker pay (220:1), median CEO pay (\$11.6m) and median worker pay (\$58,100):

CEO pay has been an issue in the business world for the past several decades. The compensation for CEOs is often a combination of salary, stock options, and other perks that are approved by the board of directors for publicly traded companies. Because of their compensation packages, CEOs often make many times more money than other employees in their companies. In 1960, the ratio of median CEO pay to median employee pay was about 2:1. By 2007, this ratio was 20:1, and in 2020, the ratio was 227:1. Industry data shows that the ratio of CEO pay to employee pay is increasing more rapidly year after year. This ratio results in a median CEO pay of \$11.6 million and median employee pay of \$58,100.

A total of 73 students (25%) and 165 adults (57%) passed both attention checks correctly, identifying the median CEO and worker pay immediately after reading the information, resulting in a final sample size of 238.

Posttest. Participants were again asked to rate their level of *CEO pay concern* using the same five-point scale. To assess the extent to which participants believed CEO pay was *justified*, we asked: "To what extent do you believe that what an average CEO contributes to their workplace justifies the average pay CEOs receive?" (1 = not at all justified, 5 = extremely justified).

Results

Baseline pay knowledge and accuracy of perceptions. We used a Mann–Whitney test for pay knowledge. This test can be used for independent groups (e.g. adults and students) when the dependent variable (e.g. CEO pay knowledge) is continuous but not normally distributed (Fay & Proschan, 2010). For *CEO pay knowledge*, we found that students ($M = 1.63$, $SD = 0.73$) reported slightly less knowledge about CEO pay than adults ($M = 1.93$, $SD = 1.13$), and the difference was marginally statistically significant, $U(N_{students} = 73, N_{public} = 165) = 5,123.50$, $z = -1.92$, $p = 0.06$. Additionally, using *average worker pay knowledge*, we found that students ($M = 2.12$, $SD = 0.91$) reported less knowledge about average worker pay than adults ($M = 2.49$, $SD = 0.97$), and this difference was statistically significant, $U(N_{students} = 73, N_{public} = 165) = 4,789.00$, $z = -2.66$, $p = 0.01$. Thus, we found partial support for *H1a*; students were less knowledgeable about average worker pay and only marginally less knowledgeable about CEO pay than adults.

For *H1b*, we used estimates of CEO pay and average worker pay from both students and adults. For average CEO pay, students estimated between \$8,000 and \$500m, with a mean of \$42,086,619.72 and a median of \$8m. The adult sample estimated CEO pay between \$68,000 and \$3.5bn, with a mean of \$336,279,835.22 and a median of \$5.5m. Because we had widely varying values between adults and students for pay, we used a one-sample Wilcoxon

signed-ranks test, which is useful when data have outliers and nonnormal distributions (Fay & Proschan, 2010), for our hypotheses related to CEO and worker pay. The student estimate was not significantly different from actual median CEO pay (\$11.6m from Marcec, 2021), $t = 1266.00$, $p = 0.95$, nor was the adult estimate, $t = 6070.50$, $p = 0.25$. We also conducted one-sample t -tests on the means of the student and adult estimates. The student estimate was significantly different from the median CEO pay of \$11.6 million, $t(70) = 2.48$, $p = 0.02$, as was the adult estimate, $t(163) = 3.27$, $p = 0.001$. Thus, we found no support for $H1b$ for CEO pay; students provided a slightly more accurate estimate of CEO pay than adults.

The student sample estimated average worker pay in a range from \$20,000 to \$90,000 after removing outlier estimates of \$22 and \$75m, with a mean of \$45,055.56 and a median of \$42,750. The adult sample estimated average worker pay in a range from \$1,000 to \$500,000, after removing an outlier estimate of \$10, with a mean of \$51,066.52 and a median of \$46,000. A one-sample Wilcoxon signed-ranks test showed that the student estimate of average worker pay was significantly different from the median of \$58,100 (Marcec, 2021), $t = 268.00$, $p < 0.001$, as was the adult estimate, $t = 3139.00$, $p < 0.001$. We also conducted one-sample t -tests to compare the means for average worker pay. We found that the mean for the student sample was significantly different from \$58,100, $t(71) = -8.04$, $p < 0.001$, but that the adult mean was not significantly different from average worker pay, $t(160) = -1.39$, $p = 0.17$. We found partial support for $H1b$ as the adult mean was closer to the median average worker pay of \$58,100 than the student estimates.

CEO pay justification. Because *justified* was measured using five response categories, we used a linear regression to estimate the contribution of CEO knowledge and average worker pay knowledge. We used a stepwise regression model with the first step including all of the control variables put into the model to predict *justified*, as seen in Table 1. Model 2 shows CEO pay knowledge ($b = 0.18$, $p = 0.18$) was not a significant predictor of CEO pay justification. In Model 3, when average worker pay knowledge was included in the model, it was not a significant predictor ($b = 0.19$, $p = 0.23$). Thus, we found no support for $H2$ in terms of perceptions of CEO pay justification.

Variables	Linear – first stage (1)	Linear – second stage (2)	Linear – second stage (3)
Sex	-0.15 (0.30)	-0.08 (0.31)	-0.17 (0.30)
Race	0.73 (0.49)	0.73 (0.49)	0.75 (0.49)
Immigrant	-0.28 (0.91)	-0.42 (0.90)	-0.24 (0.90)
Marital status	-0.04 (0.27)	-0.03 (0.27)	-0.04 (0.27)
Employment	-0.49 (0.32)	-0.46 (0.32)	-0.50 (0.32)
Investment	0.16 (0.32)	0.09 (0.32)	0.12 (0.32)
Education	-0.14 (0.13)	-0.17 (0.13)	-0.11 (0.13)
Breadwinner	0.10 (0.07)	0.10 (0.07)	0.08 (0.07)
Income	0.05 (0.10)	0.05 (0.10)	0.06 (0.10)
Age	0 (0.36)	0 (0.01)	0 (0.01)
CEO or business owner	0.36 (0.30)	0.33 (0.30)	0.34 (0.30)
Constant	2.99 (1.64)	2.97 (1.63)	2.31 (0.173)
CEO pay knowledge		0.18 (0.13)	
Worker pay knowledge			0.19 (0.16)
R^2	0.38	0.41	0.37
n	238	238	238

Table 1.
 $H2$ regressions
predicting CEO pay
justification

Notes: p -value * < 0.05 . Race, employment and CEO or business owner are binary variables such that 1 signifies White, employed or CEO or business owner, respectively
Sources: Table by authors; Steele & Holtzen

CEO pay concern. With *H3*, we wanted to test whether students and adults had different levels of concern about CEO pay (a between-groups difference). Students were as concerned about CEO pay ($M = 2.12$, $SD = 1.39$) as adults ($M = 2.15$, $SD = 1.41$), and a Mann–Whitney test showed that this difference was not significant, $U(N_{students} = 73, N_{public} = 163) = 6,018.50$, $z = -0.01$, $p = 0.99$. Additionally, students were as concerned about CEO pay after the reading ($M = 2.30$, $SD = 1.30$) as adults ($M = 2.31$, $SD = 1.33$), and this difference was not significant, $U(N_{students} = 73, N_{public} = 163) = 5,881.50$, $z = -0.15$, $p = 0.89$. We found no support for *H3* that students would be less concerned than adults about CEO pay, either before or after receiving CEO pay information.

Posttest CEO pay concern. *H4* focused on CEO pay concern before and after reading CEO pay information (a within-person difference). We used a paired-samples *t*-test for comparison. Before reading about CEO pay, participants were slightly concerned about CEO pay ($M = 2.16$, $SD = 1.40$), and their concern increased after learning more about CEO pay ($M = 2.31$, $SD = 1.32$). The increase in concern from pre- to post-CEO pay information was significant, $t(235) = -3.07$, $p = 0.002$. We found this pattern for students ($M_{pre} = 2.12$, $SD_{pre} = 1.39$; $M_{post} = 2.30$, $SD_{post} = 1.30$), $t(72) = -2.13$, $p = 0.04$, and adults ($M_{pre} = 2.17$, $SD_{pre} = 1.40$; $M_{post} = 2.31$, $SD_{post} = 1.33$), $t(162) = -2.27$, $p = 0.02$. Therefore, we found partial support for *H4*. Introducing accurate information about CEO pay increased concern about CEO pay, and the effect was similar between students and adults.

As suggested by a reviewer, we also looked at concern by the participants' or their families' status as business owner or CEO. It should be noted that in Wave 1 only some participants were asked if they or their family own a business as this question was in a block of items randomly assigned to some participants to keep the survey length short; all participants in Wave 2 were asked if they or their family own a business or if they are a CEO ($n = 91$). For those who reported being a CEO or business owner, or whose family owns a business, their concern about CEO pay did not change after learning more about CEO compensation, ($M_{pre} = 2.67$, $SD_{pre} = 1.27$; $M_{post} = 2.57$, $SD_{post} = 1.22$), $t(29) = 0.77$, $p = 0.45$. Likewise, for those who are not CEOs or business owners, their concern did not change after learning about CEO compensation ($M_{pre} = 2.89$, $SD_{pre} = 1.31$; $M_{post} = 2.97$, $SD_{post} = 1.20$), $t(60) = -0.87$, $p = 0.39$.

Supplementary analyses

We also found significant differences between men and women and those with and without investment experience (see [Table 2](#)). Men and those with investment experience were more likely to report knowledge of CEO pay, $t(233) = 3.57$, $p < 0.001$ and $t(235) = 4.33$, $p < 0.001$, respectively, but were also less concerned than women and noninvestors, before reading CEO compensation information: $t(233) = -2.35$, $p = 0.02$ and $t(235) = -2.87$, $p < 0.01$, respectively, and after: $t(142) = -2.91$, $p < 0.01$ and $t(235) = -2.68$, $p < 0.01$, respectively.

Discussion

Contrary to our hypotheses that students and adults would differ in their perceptions of CEO pay, our results indicate that business students describe similar knowledge and concern about CEO pay as adults and that receiving information about CEO compensation increased concern about CEO pay in both groups. Paradoxically, receiving accurate information also increased the extent to which participants perceived CEO pay as justified. The fact that we found few differences between students and adults (between-groups comparison) but significant differences before and after receiving accurate CEO pay information (within-person comparison) demonstrates that we have much to learn about what affects individual perceptions about CEO pay.

Table 2.
Subsample analyses

Demographic characteristics	CEO pay knowledge	Worker pay knowledge	CEO pay concern before information	CEO pay concern after information
Employment status 0 = not employed (<i>n</i> = 54), 1 = employed (<i>n</i> = 173)	1.70 vs 1.84	2.26 vs 2.38	2.07 vs 2.10	2.28 vs 2.25
Gender 0 = male (<i>n</i> = 111), 1 = female (<i>n</i> = 124)	2.10 vs 1.61***	2.48 vs 2.31	1.93 vs 2.35*	2.05 vs 2.55**
Race 0 = not White (<i>n</i> = 44), 1 = White (<i>n</i> = 194)	1.59 vs 1.90	2.18 vs 2.42	2.14 vs 2.14	2.19 vs 2.33
Marital status 0 = single (<i>n</i> = 95), 1 = partnered (<i>n</i> = 124)	1.60 vs 1.96*	2.20 vs 2.47*	2.06 vs 2.13	2.27 vs 2.28
Need to work 0 = no need (<i>n</i> = 65), 1 = need (<i>n</i> = 172)	1.68 vs 1.91	2.17 vs 2.47*	1.89 vs 2.24	2.08 vs 2.39
Investment experience 0 = no (<i>n</i> = 86), 1 = yes (<i>n</i> = 151)	1.47 vs 2.07***	2.30 vs 2.44	2.49 vs 1.95**	2.60 vs 2.13**
Self or family CEO or business owner 0 = no (<i>n</i> = 61), 1 = yes (<i>n</i> = 30)	2.36 vs 2.60	3.00 vs 3.20	2.89 vs 2.67	2.97 vs 2.57

Notes: **p* < 0.05; ***p* < 0.01; and ****p* < 0.001

Sources: Table by authors; Steele & Holtzen

An interesting target for future studies would be to investigate group differences in reported knowledge about and concern with CEO pay. Women were more likely to be concerned about CEO pay than their male counterparts. The literature on male and female differences in ethics and decision-making (e.g. Wang & Calvano, 2015) may provide avenues for future research. Investment experience should also be investigated further. In our study, those who invest were more likely to report knowing about CEO pay but less likely to be concerned than noninvestors. One reason may be that in our sample, men were marginally significantly more likely to be investors (78 invested, 33 did not) compared to women (71 invested, 53 did not), $X^2(2, n = 236) = 4.86, p = 0.09$. However, it may be that investors have more information about CEO pay and may feel they have some influence over CEO pay as shareholders that noninvestors do not. As suggested by an insightful reviewer, it may also be that investors believe they may someday be in a high-level position with earnings similar to a CEO, and thus, may support such high pay for executives.

The results of our study also hold implications for social comparison (Festinger, 1954) and equity theory (Adams, 1965). In our study, although concern for CEO compensation increased after the presentation of accurate pay information, our participants also found CEO compensation to be more justified after learning the true magnitude of CEO-to-median-worker pay. This is surprising, especially when one considers that both subgroups in our sample underestimated the true CEO-to-median-employee pay ratio. Equity theory suggests that upon learning that CEOs earn more in relation to the average worker than originally anticipated, participants would report the topic to be of more concern. However, our results found the opposite to be true. Future studies should consider other variables, such as other components of CEO compensation beyond pay, that affect equity perceptions. Researchers may also consider different operationalizations of variables that are commonly included in studies of CEO compensation. For example, Donatiello et al. (2016) present several different conceptualizations for measuring a CEO's value creation to the firm, including comparing a CEO's realized compensation with their value creation over a specific time period. In addition, future studies should consider not only the effect of outcome accuracy on equity calculations but also inputs, such as knowledge, skills and abilities, that justify their compensation.

Of particular importance to business educators, our results suggest future research thoughtfully consider how CEO pay information is presented. Other CEO compensation information exists that researchers could use in future research such as stock ownership in the firm, which is the largest share of CEO compensation (Sonenshine, Larson, & Cauvel, 2016); the rate CEO pay has increased compared to average worker pay over time; and how long it takes a CEO to earn as much as their average employee does annually (e.g. Anderson, 2021; Duarte, 2019; Kiersz, 2020).

Likewise, how business courses present CEO compensation may affect student concerns about the topic. Business schools tend to teach students about contemporary business practices, like CEO compensation, in a factual and objective manner (Brokerhof et al., 2023; Valente, Sa, Soares, & Sousa, 2021). Educators rarely ask students to consider the ethical implications, critique the advantages and disadvantages or brainstorm different ways of doing business that would benefit more individuals and society (Brokerhof et al., 2023; Marques, 2019). Future research should focus on how to present CEO compensation information to business students, shareholders and the public such that the ethical implications of CEO pay are considered.

Limitations

Our study has many limitations. First, in the first wave of data collection, we did not ask respondents if they were CEO of a firm nor did we ask all respondents whether they or their

family owned a business, so we may not have captured all of the individuals in our sample. Our sample also under-represents the percentage of households making less than \$100,000 in income, and previous research shows a connection between income and perceptions of CEO compensation (Larcker et al., 2016).

Second, our total sample size ($n = 238$) is modest. The pass rates for our manipulation checks (25% of students and 57% of adults) suggest that individuals struggle to accurately interpret pay information. Future investigations into perceptions of CEO compensation should consider alternative ways to present pay information (e.g. visual representations of the ratio between CEO and median worker pay) that could improve the accuracy with which these numbers are perceived.

As with any nonrandom sample, there are also limits to the generalizability of our results. For example, the two geographic locations from which respondents were surveyed have vastly different political ideologies. The Larcker et al. (2016) study noted important differences in beliefs surrounding CEO compensation when different political affiliations were compared. Our study is likely limited by similar generalizability concerns.

References

- Adams, J. S. (1965). Inequity in social exchange. In Berkowitz, L. (Ed.), *Advances in experimental social psychology*, 2, Academic Press, 267–299.
- Aguinis, H., Martin, G. P., Gomez-Mejia, L. R., O’Boyle, E. H., & Joo, H. (2018). The two sides of CEO pay injustice: a power law conceptualization of CEO over and underpayment. *Management Research: Journal of the Iberoamerican Academy of Management*, 16(1), 3–30. doi: [10.1108/MRJIAM-02-2017-0731](https://doi.org/10.1108/MRJIAM-02-2017-0731).
- Alicke, M. D., Klotz, M. L., Breitenbecher, D. L., Yurak, T. J., & Vredenburg, D. S. (1995). Personal contact, individuation, and the above-average effect. *Journal of Personality and Social Psychology*, 68(5), 804–825. doi: [10.1037/0022-3514.68.5.804](https://doi.org/10.1037/0022-3514.68.5.804).
- Anderson, J. (2021). How many minutes does it take a CEO to earn your annual salary? Yahoo! finance. Retrieved from <https://finance.yahoo.com/news/many-minutes-does-ceo-earn-160050603.html>
- Antenucci, R. (2020). The disconnect between CEO compensation and firm performance during recessionary periods. *Global Journal of Economics and Finance*, 4(2), 25–40.
- Bebchuk, L. A., & Fried, J. M. (2004). *Pay without performance: The unfulfilled promise of executive compensation*, Harvard University Press.
- Besharat, A., Whittle, K. A., & Kashmiri, S. (2023). When CEO pay becomes a brand problem. *Journal of Business Ethics*, 190(4), 1–33. doi: [10.1007/s10551-023-05394-0](https://doi.org/10.1007/s10551-023-05394-0).
- Brokerhof, I. M., Sucher, S. J., Matthijs Bal, P., Hakemulder, F., Jansen, P. G., & Solinger, O. N. (2023). Developing moral muscle in a literature-based business ethics course. *Academy of Management Learning & Education*, 22(1), 63–87. doi: [10.5465/amle.2020.0072](https://doi.org/10.5465/amle.2020.0072).
- Brown, M. (2021). Expectations vs. reality: Early career salaries. LendEDU. Retrieved from <https://lendedu.com/blog/college-graduates-salary-expectations-realities/>
- Business Wire. (2021). College students predict brighter outcomes for their financial futures, despite lingering COVID concerns and rising credit card use. Retrieved from www.businesswire.com/news/home/20210512005617/College-Students-Predict-Brighter-Outcomes-for-Their-Financial-Futures-Despite-Lingering-COVID-Concerns-and-Rising-Credit-Card-Use
- Choe, S. (2021). CEO pay rises to \$12.7M even as pandemic ravages economy. Associated Press. Retrieved from <https://apnews.com/article/ceo-pay-rises-again-b1d87eb36ac921a159268a6b830fc308>
- Cooper, M. J., Gulen, H., & Rau, P. R. (2016). *Performance for Pay? The Relation between CEO Incentive Compensation and Future Stock Price Performance*, doi: [10.2139/ssrn.1572085](https://doi.org/10.2139/ssrn.1572085). or available at <https://ssrn.com/abstract=1572085>

- Donatiello, N. E., Larcker, D. F., & Tayan, B. (2016). CEO pay, performance, and value sharing. Stanford Closer Look Series. Retrieved from www.gsb.stanford.edu/sites/default/files/publication-pdf/cgri-closer-look-53-ceo-pay-performance-value-sharing.pdf
- Duarte, F. (2019). It takes a CEO just days to earn your annual wage. BBC. Retrieved from www.bbc.com/worklife/article/20190108-how-long-it-takes-a-ceo-to-earn-more-than-you-do-in-a-year
- Eavis, P. (2021). Meager rewards for workers, exceptionally rich pay for CEOs. The New York Times. Retrieved from www.nytimes.com/2021/06/11/business/ceo-pay-compensation-stock.html
- Edmans, A. (2017). Why we need to stop obsessing over CEO pay ratios. Harvard Business Review. Retrieved from <https://hbr.org/2017/02/why-we-need-to-stop-obsessing-over-ceo-pay-ratios>
- Fay, M. P., & Proschan, M. A. (2010). Wilcoxon-Mann-Whitney or t-test? On assumptions for hypothesis tests and multiple interpretations of decision rules. *Statistics Surveys*, 4, 1–39. doi: 10.1214/09-SS051.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, 7(2), 117–140. doi: 10.1177/001872675400700202.
- Fulmer, I. S., & Li, J. (2022). Compensation, benefits, and total rewards: A bird's-eye (re) view. *Annual Review of Organizational Psychology and Organizational Behavior*, 9(1), 147–169. doi: 10.1146/annurev-orgpsych-012420-055903.
- Gelles, D. (2021). CEO pay remains stratospheric, even at companies battered by the pandemic. The New York Times. Retrieved from www.nytimes.com/2021/04/24/business/ceos-pandemic-compensation.html
- Harris, M. M., Anseel, F., & Lievens, F. (2008). Keeping up with the Joneses: A field study of the relationships among upward, lateral, and downward comparisons and pay level satisfaction. *Journal of Applied Psychology*, 93(3), 665. doi: 10.1037/0021-9010.93.3.665.
- Kaplan, S. N. (2008a). Are U.S. CEOs overpaid? *Academy of Management Perspectives*, 22(2), 5–20. doi: 10.5465/amp.2008.32739755.
- Kaplan, S. N. (2008b). Are U.S. CEOs overpaid? A response to Bogle and Walsh. *Academy of Management Perspectives*, 22(3), 28–34. doi: 10.5465/amp.2008.34587993.
- Khurana, R., & Zelleke, A. (2009). You can cap the pay, but the greed will go on. The Washington Post. Retrieved from www.washingtonpost.com/wp-dyn/content/article/2009/02/06/AR2009020602794.html
- Kiersz, A. (2020). We did the math to calculate how many hours it took bob Iger to make what his workers make in one year when he ran Disney. Business Insider. Retrieved from www.businessinsider.com/how-long-ceos-make-what-employees-do-in-a-year
- Kulik, C. T., & Ambrose, M. L. (1992). Personal and situational determinants of referent choice. *Academy of Management Review*, 17(2), 212–237.
- Larcker, D. F., Donatiello, N. E., & Tayan, B. (2016). Americans and CEO pay: 2016 public perception survey on CEO compensation. CGRI Survey Series Corporate Governance Research Initiative, Stanford Rock Center for Corporate Governance. Retrieved from www.gsb.stanford.edu/sites/default/files/publication-pdf/cgri-survey-2016-americans-ceo-pay.pdf
- Lichand, G., Doria, C. A., Leal-Neto, O., & Fernandes, J. P. C. (2022). The impacts of remote learning in secondary education during the pandemic in Brazil. *Nature Human Behaviour*, 6(8), 1079–1086. doi: 10.1038/s41562-022-01350-6.
- McCall, J. J. (2004). Assessing American executive compensation: A cautionary tale for Europeans. *Business Ethics: A European Review*, 13(4), 243–254. doi: 10.1111/j.1467-8608.2004.00368.x.
- Marcec, D. (2021). Trends to watch: An early look at CEO pay and the impact of COVID-19 on employee compensation. Harvard Law School Forum on Corporate Governance. Retrieved from <https://corpgov.law.harvard.edu/2021/03/31/trends-to-watch-an-early-look-at-ceo-pay-and-the-impact-of-covid-19-on-employee-compensation/>

- Marques, J. (2019). Creativity and morality in business education: toward a trans-disciplinary approach. *The International Journal of Management Education*, 17(1), 15–25. doi: [10.1016/j.ijme.2018.11.001](https://doi.org/10.1016/j.ijme.2018.11.001).
- Mishel, L., & Kandra, J. (2021). Preliminary data show CEO pay jumped nearly 16% in 2020, while average worker compensation rose 1.8%. Economic Policy Institute's Working Economics Blog. Retrieved from www.epi.org/blog/preliminary-data-show-ceo-pay-jumped-nearly-16-in-2020-while-average-worker-compensation-rose-1-8/
- Mishel, L., & Kandra, J. (2020). CEO compensation surged 14% in 2019 to \$21.3 million. Economic Policy Institute's Working Economics Blog. Retrieved from www.epi.org/publication/ceo-compensation-surged-14-in-2019-to-21-3-million-ceos-now-earn-320-times-as-much-as-a-typical-worker/
- Proctor, B. D., Semega, J. L., & Kollar, M. A. (2016). Income and poverty in the United States: 2015. *US Census Bureau*, 14. Current Population Reports.
- Smith, D. (2015). Most people have no idea whether they're paid fairly. Harvard Business Review. Retrieved from <https://hbr.org/2015/10/most-people-have-no-idea-whether-theyre-paid-fairly>
- Sonenshine, R., Larson, N., & Cauvel, M. (2016). Determinants of CEO compensation before and after the financial crisis. *Modern Economy*, 7(12), 1455–1477. doi: [10.4236/me.2016.712133](https://doi.org/10.4236/me.2016.712133).
- Taylor, S. E., & Thompson, S. C. (1982). Stalking the elusive "vividness" effect. *Psychological Review*, 89(2), 155–181. doi: [10.1037/0033-295X.89.2.155](https://doi.org/10.1037/0033-295X.89.2.155).
- Tosi, H. L., Werner, S., Katz, J. P., & Gomez-Mejia, L. R. (2000). How much does performance matter? A meta-analysis of CEO pay studies. *Journal of Management*, 26(2), 301–339. doi: [10.1177/014920630002600207](https://doi.org/10.1177/014920630002600207).
- Urban Institute. (2015). Working during college: Who works, and how much?. [accessed 30 December 2021] Retrieved from <https://nces.ed.gov/programs/coe/indicator/ssa>
- US Bureau of Labor Statistics. (2020). May 2019 national occupational employment and wage estimates: All occupations. Retrieved from www.bls.gov/news.release/archives/ocwage_03312020.pdf
- Valente, M., Sa, C., Soares, N., & Sousa, S. (2021). Exploring the consistency of ethical perceptions by business and economics higher education students: Looking from academia towards the corporate world. *The International Journal of Management Education*, 19(2), 100499. doi: [10.1016/j.ijme.2021.100499](https://doi.org/10.1016/j.ijme.2021.100499).
- Van Essen, M., Otten, J., & Carberry, E. J. (2015). Assessing managerial power theory: A meta-analytic approach to understanding the determinants of CEO compensation. *Journal of Management*, 41(1), 164–202. doi: [10.1177/0149206311429378](https://doi.org/10.1177/0149206311429378).
- Walsh, J. P. (2009). Are U.S. CEOs overpaid? A partial response to Kaplan. *Academy of Management Perspectives*, 23(1), 73–75. doi: [10.5465/amp.2009.37008004](https://doi.org/10.5465/amp.2009.37008004).
- Wang, L. C., & Calvano, L. (2015). Is business ethics education effective? An analysis of gender, personal ethical perspectives, and moral judgment. *Journal of Business Ethics*, 126(4), 591–602. doi: [10.1007/s10551-013-1973-y](https://doi.org/10.1007/s10551-013-1973-y).
- Williams, M. L., McDaniel, M. A., & Nguyen, N. T. (2006). A meta-analysis of the antecedents and consequences of pay level satisfaction. *Journal of Applied Psychology*, 91(2), 392–413. doi: [10.1037/0021-9010.91.2.392](https://doi.org/10.1037/0021-9010.91.2.392).
- World Bank. (2021). Tracking an unprecedented year for businesses, everywhere. World Bank Feature Story. Retrieved from www.worldbank.org/en/news/feature/2021/02/17/tracking-an-unprecedented-year-for-businesses-everywhere

Further reading

Homans, G. C. (1961). *Social behaviour: Its elementary forms*, Routledge & Kegan Paul.

Leventhal, G. S. (1976). The distribution of rewards and resources in organizations. In L. Berkowitz, W. Walster (Eds), *Advances in experimental social psychology*, 9, 91–131.

Leventhal, G. S. (1980). What should be done with equity theory? New approaches to the study of equity theory. In K. Gergen, M. Greenberg, R. Willis (Eds), *Social exchange: Advances in theory and research*, 27–55. Plenum Press.

Thibaut, J., & Walker, L. (1975). *Procedural justice: A Psychological Analysis*, Erlbaum.

Corresponding author

Clarissa R. Steele can be contacted at: crsteele@ksu.edu

For instructions on how to order reprints of this article, please visit our website:

www.emeraldgrouppublishing.com/licensing/reprints.htm

Or contact us for further details: permissions@emeraldinsight.com