

Managerial ability, CEO-median employee pay gap, and compensation

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ABSTRACT

Using the managerial ability measure developed by Demerjian, Lev, and McVay (2012), this paper examines the effect of managerial ability on the CEO-median employee pay gap, the CEO compensation, and median employee compensation, respectively. The sample studied in the study covers the first fiscal year (2017 or 2018) for which S&P 1500 constituents disclosed the CEO-median employee pay ratio information in compliance with the requirement of Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010. The authors predict that managerial ability may be associated with a larger or smaller pay gap between CEOs and median employees, depending on whether more able managers also use higher compensation to enhance employee productivity. The results indicate that managerial ability is associated with both higher CEO compensation and higher median employee compensation but not with the ratio of the two compensation amounts. Furthermore, the positive relation between managerial ability and median employee compensation may be mediated by employee productivity. The findings in this paper add to the literature on managerial ability, the CEO-employee pay disparity, as well as the determinants of the compensation of rank-and-file employees.

Keywords: managerial ability, CEO-median employee pay ratio, CEO compensation, employee compensation

INTRODUCTION

CEO compensation has long been an issue that received much attention from academic researchers. However, as the amount of CEO compensation in corporate America continues to grow, the question of whether CEO pay is too high or whether the large pay gap between CEOs and their employees is justified can be found in the press every time new annual compensation amounts and pay ratios were reported (e.g. Wingard, 2020; Holtermann, 2021). The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 introduced the requirements of the say-on-pay vote on executive compensation as well as mandatory disclosure of the ratio of CEO total compensation to median employee total compensation. While information about CEO compensation has been available for years, the new disclosure requirement now makes the information about the median employee compensation available to the public eyes.

Bertrand and Schoar (2003) empirically demonstrate that individual managers can have their own impacts on corporate decisions. Rather than using individual credentials such as education, Demerjian, Lev, and McVay (2012) construct an outcome-based measure of managerial ability. Their work led to a growing literature in accounting examining the effect of managerial ability. This paper attempts to build upon the literatures on both compensation and on managerial ability. While there has been considerable business literature on the effects of the gap of between CEO and employee compensation, relatively less is known about employee compensation, an integral part of such CEO-employee pay gap. Using data manually collected from the proxy statements of S&P 1500 companies regarding the compensation of both CEOs and median employees, this study investigates whether managerial ability affects the CEO-median employee pay ratio, a proxy for the pay gap between CEOs and lower-level employees, CEO total compensation, and median employee total compensation.

The CEO-median employee pay gap is jointly determined by the total compensation of both the CEO and the median employee. Based on the presumption that more able CEOs are better compensated, managerial ability may have an increasing or decreasing effect on the CEO pay ratio depending on whether and how managerial ability influences the compensation of median employee.¹ On one hand, more able CEOs may be better at increasing employee output and investment returns without incurring higher labor costs (Ghosh, Huang, and Li, 2020). On the other hand, more able CEOs may be more skilled at enhancing employee productivity using various means, including monetary rewards. Managerial ability therefore may have an increasing or decreasing effect on median employee compensation. As a result, managerial ability may be positively or negatively associated with the CEO-median employee pay gap.

To examine the effect of managerial ability on the CEO-median employee pay gap, the CEO-median employee pay ratio and its two components are separately regressed on the measure of managerial ability developed by Demerjian et al. (2012) along with several control variables. The results show that managerial ability is positively associated with not only the total compensation of CEOs but also that of the median employees. However, the relation between managerial ability and the pay ratio is not statistically significant. Further analyses indicate that the increasing effect of managerial ability on median employee pay may be due to the increasing effect of managerial ability on employee productivity.

This study makes several contributions. First, it adds to the growing accounting literature that examines the effects of managerial ability by documenting an association between managerial ability and compensation of both CEO and rank-and-file employees. Second, while

¹ This presumption is also validated in the study.

there has considerable research on executive compensation, the research on compensation of rank-and-file employees is rather limited. This paper brings new evidence to this thin line of literature. Finally, prior studies that examine CEO-employee pay disparity typically use pay ratio as either an exogenous variable or a single endogenous variable affected by a set of factors. This paper shows that, the compensation of CEO and median employees is driven by both shared and distinct determinants, which should be considered by future research that examines the CEO-median employee pay disparity.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

The CEO to median employee pay ratio is regarded as a measure of compensation gap between the CEOs and the rank-and-file employees. There are two opposing views about the role of such income disparity. The tournament theory proposes that the large pay gap between the CEO and the rank-and-file employees motivates the employees to climb up the corporate ladder (Lazear and Rosen, 1981), whereas the distributive justice theories suggest that the disparity can hurt employee morale, thereby lowering employee productivity (Cowherd and Levine, 1992).

Prior literature shows that individual managers can impact various corporate decisions and performance (Bertrand and Schoar, 2003). A number of recent empirical studies report a positive association between managerial ability and different aspects of firm performance. Specifically, more-able managers are more capable of producing higher-quality earnings (Demerjian, Lev, Lewis, and McVay, 2013), improving earnings informativeness via income smoothing or earnings forecasts (Demerjian, Lewis-Western, and McVay, 2017; Baik, Choi, and Farber, 2020; Baik, Farber, and Lee, 2011), lowering tax costs (Koester, Shevlin, and Wangerin, 2016), increasing innovative output as well as employee productivity (Chen, Podolski, and Veeraraghaven, 2015; Ghosh et al., 2020), and enhancing credit ratings of the companies (Cornaggia, Krishnan, and Wang, 2017).

While CEO compensation is determined by various firm and personal attributes, Falato, Li, and Milbourn (2015) found that CEO pay is higher for CEOs with better credentials as measured by their press coverage, speed of career advancement, and education. Graham, Li, and Qiu (2012) also documented, among the executives who moved between companies, a manager-specific fixed effect in determining executive compensation and that the fixed effects may be attributed to executives' influence on corporate innovation and financing policies. These findings from prior studies suggest that more able CEOs likely receive higher compensation. If managerial ability does not affect rank-and-file employee compensation, then pay gap between CEOs and employees is likely wider for companies led by more able managers.

Managers of higher ability are better at utilizing resources at hand to enhance output of the company (Holcomb, Holmes, and Connelly, 2008). Therefore, it is possible that more able managers are capable of generating greater output without having to incur higher compensation expenses for lower-level employees. In fact, Ghosh et al. (2020) found no statistically significant relation between managerial ability and labor cost per employee. On the other hand, more able managers, who are known to be able to deliver better results, may be more effective at motivating employees to increase employee productivity. Given that monetary rewards have been shown as a very powerful way to motivate employees and increase productivity (Aguinis, Joo, and Gottfredson, 2013), companies led by more able managers may also offer higher compensation to employees to elicit greater productivity.

In summary, if more able CEOs receive greater compensation themselves but do not generally pay their employees more, then a positive relation between managerial ability and the CEO-employee pay gap can be expected cross-sectionally. If managerial ability leads to not only higher CEO compensation but also higher pay for lower-level employees, then the relation between managerial ability and the CEO-employee pay gap may be positive or even negative. The following hypothesis is therefore stated in the null form:

H1 (null): CEO-median employee pay gap is not associated with managerial ability.

Since the measure of CEO-median employee gap, CEO-median employee pay ratio, is jointly determined by both CEO and median employee pay, the relation between managerial ability and the pay ratio is collectively affected by the effect of managerial ability on CEO pay as well as by the effect of managerial ability on median employee pay. Building on findings of prior research, more able managers are likely to receive higher compensation. Hypothesis 2, stated in the alternative form, therefore predicts a positive relation between managerial ability and CEO compensation.²

H2 (alternative): CEO compensation is positively associated with managerial ability.

As discussed earlier, more able managers may be better at utilizing existing resources. In this case, they may be able to maximize employee output without incurring additional compensation cost. On the other hand, monetary rewards are effective at increasing employee productivity. Therefore, higher employee pay may be one of the means employed by more able managers to enhance productivity. The relation between managerial ability and median employee pay therefore may be zero or positive. Hypothesis 3 is therefore stated in the null form as:

H3 (null): Median employee pay is negatively associated with managerial ability.

RESEARCH DESIGN

To test the aforementioned hypotheses, equation (1) below is estimated.

$$\begin{aligned} DV_i = & \alpha + \beta_0 \text{MASCORE}_i + \beta_1 \text{SIZE}_i + \beta_2 \text{BTM}_i + \beta_3 \text{RET}_i + \beta_4 \text{IB}_i \\ & + \beta_5 \text{RISK}_i + \beta_6 \text{DUAL}_i + \beta_7 \text{HHI}_i + \beta_8 \text{HMG}_i + \beta_9 \text{UNION}_i \\ & + \beta_{10} \text{RDI}_i + \beta_{11} \text{CAPI}_i + \beta_{12-19} \text{Industry Indicators}_i + \varepsilon_i \end{aligned} \quad (1)$$

DV, the dependent variable, is the natural logarithm of CEO-median employee pay ratio plus one (LPAYRATIO, firm subscript *i* omitted hereafter for brevity), the natural logarithm of CEO total compensation plus one (LCEOPAY), or the natural logarithm of median employee total compensation plus one (LEMPPAY) as reported by the companies in their disclosures of the CEO-median employee pay ratios in the annual proxy statements filed with the SEC.³ The independent variable of interest, MASCORE, is the managerial ability score constructed by Demerjian et al. (2012) for the same fiscal year.⁴ Their managerial ability score measures the

² The managerial ability pertains to the ability of the entire company management rather than the CEO him/herself. At the first glance, there appears to be a disconnection by associating the collective ability of the management with CEO pay. However, since CEO is not only a member of the management but also the chief of the management, s/he likely has more influence on various corporate decisions than any other member of the management. Furthermore, the CEO can also influence the personnel decisions regarding lower-level management. If the ability of the management observed ex-post is higher than peers and compensation of all executives is at least partially based on performance, then all executives of the company, including the CEO, will likely receive higher compensation.

³ One is added to each of those variables before undergoing the logarithm transformation just in case that any compensation amount is zero.

⁴ We thank Dr. Demerjian for providing the managerial ability score data.

efficiency of management in turning inputs such as property, plant, and equipment, R&D expenditures, operating leases, goodwill, cost of inventory, and selling, general, and administrative expenses into sales revenues, after accounting for the effects of a variety of firm characteristics.

Other independent variables are known determinants of the CEO pay ratio as reported by Faleye, Reis, and Venkateswaran (2013). SIZE is the natural logarithm of sales revenues. BTM is the ratio of the book value of the firm's common stock to its market value. RET is the 12-month industry-adjusted return of the common stock of the company. IB is operating income of current year scaled by total assets. RISK is the standard deviation of stock returns over the previous 60 months. DUAL, a proxy for CEO power, is an indicator variable that equals one if the CEO also serves as the chairman of the board in the current year and zero otherwise. HHI is the Herfindahl index that gauges the industry concentration. HMG, a measure of the industry homogeneity, is calculated as the mean partial correlation between the firm's stock returns and the equally-weighted industry stock returns while holding market stock returns constant. UNION, a proxy for the level of influence of labor unions, is one hundred times the percentage of employees who are members of a union in the industry in which the company operates. RDI represents the firm's intensity of research and development (R&D) activities, measured as reported R&D expenditures divided by total assets. CAPI, the capital intensity, is calculated as net property, plant, and equipment divided by the number of employees of the company. Industry indicator variables are incorporated based on the 2-digit SIC code to control for the industry fixed effects.⁵ The data required for calculating the independent variables are obtained from Compustat and CRSP databases. The information about employee unionization is obtained from the Union Membership and Coverage Database created by Barry Hirsch and David Macpherson.

The information about CEO-median employee pay ratios is retrieved from the annual proxy statements available at the SEC EDGAR database. Regulation S-K requires public companies to disclose the annual CEO total compensation, the median of annual total compensation of all their employees other than the CEO, and the ratio of these two amounts. While there were a few exclusions, the disclosure requirement applies to most companies for fiscal year beginning on or after January 1, 2017. Due to the hurdle of hand collecting the pay ratio and compensation data, the sample is limited to S&P 1500 companies for the first fiscal year for which the pay ratio information was disclosed.

SAMPLE SELECTION AND DESCRIPTIVE STATISTICS

The sample formation began with 1,454 companies that made up the S&P 1500 index with non-missing information about CEO annual total compensation, median employee annual total compensation, and the ratio of the two amounts reported in the proxy statements for fiscal year 2017 or 2018, depending on the year for which the company provided the pay ratio disclosure for the first time. Out of the 1,454 firm years, managerial ability score information was missing for 410 of them. This reduced the sample size down to 1,044 observations. There were another 10 firm years with incomplete information required to calculate one or more control variable. As a result, the final sample contains 1,034 unique firm years for the hypothesis testing.

⁵ Firms in the sample are classified into 9 industries based on the 2-digit SIC code (see Table 1 for the list of industries). Therefore, 8 industry indicator variables are included.

As reported in Table 1, slightly over half of the sample (52.61%) consists of manufacturing companies, followed by service providers (17.99%) and retailers (10.35%). There are very few companies in the sample that are in the agricultural (0.19%) or the financial service industries (0.58%). The industry with the highest average CEO-median employee pay ratio is the retail industry, 519.86. It is not surprising that the largest gap between CEO pay and median employee pay exists in the retail industry, as the median employees are not limited to full-time employees or U.S. employees. Therefore, the industry average of median employee total compensation in the retail industry was only \$22,437, which fell below the average of all other industries except for the agricultural industry.

Both mining and construction industries have average pay ratios of less than 100 (88.25 and 94.97, respectively). However, it appears that the low pay ratios are not driven by low CEO compensation. Rather, the average amounts of median employee annual total compensation in mining and construction are higher than all other industries at \$111,588 and \$75,740, respectively. Among the nine industries, service providers reported the highest CEO total compensation at an industry average of \$9,974,229, whereas the compensation of the two CEOs in the agricultural industry only averaged \$1,375,522, which is several millions below the mean of any other industry group. However, given that the industry averages of median employee pay in service and agricultural industries are also relatively high and low, respectively, the resulting CEO-median employee pay ratios in those two industries are in the low-200 range, comparable to the pay ratios of the manufacturing and wholesale industries.

Panel A of Table 2 presents the sample descriptive statistics. The mean and median of the managerial ability scores (MASCORE) of the sample are 0.01 and -0.04, respectively. While the median of the sample is comparable to the (untabulated) median managerial ability score of all Compustat firms for the same period, the mean managerial ability score of the sample in this study is notably higher than the (untabulated) mean of -0.0022 of the entire Compustat universe. This is not surprising as the sample in this study includes only S&P 1500 index companies that likely perform better than the general population of public companies.

The first three rows in Panel A of Table 2 also present the descriptive statistics for the CEO-median employee pay ratio as well as CEO and median employee annual total compensation the logarithm transformation. The distributions of both the CEO and median employee annual total compensation amounts are somewhat positively skewed as the means are higher than the median compensation amounts. The mean and median CEO annual total compensation amounts are \$8,209,814 and \$6,338,208, respectively. The mean and median of median employee annual total compensation are considerably lower at \$63,036 and \$55,440, respectively. On average, CEO compensation is about 219 times of the median employee compensation. Note that in selecting the median employees, employees who work part-time or overseas are also included. Companies are allowed the discretion to annualize the salary of part-time employee or to make cost-of-living adjustments for employees residing outside the U.S. Since there is no uniform guidance on whether or how to make those adjustments, some heterogeneity likely exists in how the median employee salary amounts are determined across firms.

The coefficients of correlation among all variables are reported in Panel B of Table 2. The managerial ability measure (MASCORE) is positively correlated with CEO compensation, with median employee compensation, and with the resulting pay ratio. The CEO-median employee pay ratio also correlates positively with firm size (SIZE), growth opportunities (BTM), firm stock returns (RET), accounting measure-based performance (IB), CEO power (DUAL),

and industry homogeneity (HMG). In contrast, the pay ratio is negatively correlated with firm risk (RISK), industry concentration (HHI), and physical capital intensity (CAPI).

EMPIRICAL RESULTS

Results of Main Tests

Equation (1) was estimated using OLS regressions to test the three hypotheses in the study. The regression results are presented in Table 3. H1 indicates that the relation between managerial ability and the pay gap between CEOs and median employees can be positive or negative, depending on whether more able managers also set higher compensation to motivate their employees. The first column of the results in Table 1 pertains to the estimation of equation (1) using the natural logarithm of the CEO pay ratio (LPAYRATIO) as the dependent variable. The coefficient on MASCORE is -0.168, but this negative coefficient is statistically insignificant even at 10% level.

H2 predicts that the higher managerial ability is associated with higher CEO compensation. As reported in the results reported in the second column of Table 3, the coefficient on MASCORE is positive (0.326) and statistically significant at 5% level (p-value = 0.019). This result supports the prediction that CEO compensation increases with managerial ability. Finally, H3 predicts that more able managers may or may not provide employees with a greater amount of compensation. Based on the result reported in the third column of Table 3, the positive coefficient on MASCORE (0.465, p-value = 0.0015) indicates that more able managers indeed pay their employees more.

As the dependent variables have undergone the logarithm transformation, the coefficients on MASCORE do not directly translate into dollar-amount effects. To put these numbers into perspectives, the results of equation (1) suggest that, for a hypothetical company operating in the agricultural industry with a managerial ability score at the sample median (-0.04) as well as all control variable at the sample medians, the CEO and the median employee total compensation amounts would be \$2,831,543 and \$19,641, respectively. Holding the values of all control variables at sample medians, if the same company has management with ability at the 75th percentile of the sample (MASCORE = 0.1) the CEO and the median employee total compensation amounts would increase to \$2,963,604 and \$20,962, respectively. These changes represent 4.66% and 6.73% increases in CEO and median employee total compensations, respectively. The CEO-median employee pay ratio calculated with these amount decreases from 144.17 to 141.38 when the managerial ability score moves from the median to the 75th percentile of the sample.

The regression results also indicate that CEO pay, median employee pay, and the resulting pay ratio are all higher in larger firms. Companies with greater growth opportunities and higher stock returns also compensate both CEOs and median employees better. The CEO compensation and CEO-median employee pay ratio are both higher in industries with more fierce competition, but employees working in more competitive industries do not get higher pay. It is also not surprising that firms operating in more unionized industries have lower CEO compensation but higher employee compensation, resulting in lower CEO pay ratios. Finally, median employee pay also increases with R&D intensity and physical capital intensity, whereas CEO compensation does not.

Based on the findings that managerial ability is positively related to both CEO and median employee compensation but not associated with the resulting CEO-median employee pay ratio, it suggests that the managerial ability may increase CEO pay and median employee pay to a similar extent. That is, if the compensation of a CEO of high ability is 20 percent higher than a CEO of lesser ability employed by a comparable firm, then the compensation of the median employee at the former company is also 20 percent higher than the median employee at the latter company. Taken together, the results indicate that CEO total compensation is positively associated with their ability. At the same time, more able CEOs provide higher compensation to their employees in general, likely to motivate employees to work harder, which corroborates with the finding reported by Ghosh et al. (2020) that managerial ability is positively associated with employee productivity.

Note that the managerial ability score is a composite measure that captures the efficiency of the management in turning various inputs into sales revenues. Hence, it does not specifically gauge the ability of the CEO alone and may cast doubt on the association between the managerial ability measure and the CEO compensation. However, Demerjian et al. (2012) documented improvements (deteriorations) in firm operating performance following the appointments of new CEOs with higher (lower) managerial ability scores (as taken from their prior positions). Their finding indicates that CEOs can have significant influence over the overall firm performance. Furthermore, the CEO is the leader of the executive management team. If one expects that the management of superior ability are to receive higher compensation, then the pay premium shall apply to most or all team members, including the CEO.

Additional Analyses

As reasoned earlier in the paper, more able managers may be better at enhancing employee productivity with monetary rewards or other means. An additional analysis in the spirit of the mediation analysis proposed by Baron and Kenny (1986) is conducted to see if managerial ability increases employee productivity and, subsequently, median employee compensation. First, median employee pay (LEMPPAY) is regressed on the managerial ability score (MASCORE) along with industry indicator variables. The coefficient on the managerial ability score is significantly positive at 0.9788 (t statistic = 7.70). A measure of employee productivity, LABORPROD, calculated following Rouen (2020) as sales revenues (amounts reported in millions) divided by the number of employees, is then regressed on the managerial ability score and industry indicator variables.⁶ The result also shows a positive and significant coefficient (1473.09 with t statistics = 14.46) on the managerial ability score, suggesting a positive relation between managerial ability and employee productivity. Finally, when LABORPROD is added as an additional repressor to the regression of median employee pay (LEMPPAY) on MASCORE, the coefficient on MASCORE decreased to 0.3430 (t statistics = 2.62) from 0.9788.⁷ These

⁶ Ghosh et al. (2020) measure employee productivity as the sum of net income and employee related expenses divided by the reported number of employees. However, as the employee related expenses are not reported separately on the face of income statement by all companies, there are too few observations that report employee related expenses to use this measure of employee productivity for additional analyses.

⁷ The three regressions are also re-estimated by including other control variables used to estimate equation (1). The results of the first two regression, the regression of LEMPPAY on MASCORE and the regression of LABORPROD on MASCORE, respectively, are qualitatively similar. In the third regression of LEMPPAY on both MASCORE and LABORPROD along with control variables, the coefficient on MASCORE becomes statistically insignificant. The result of the third regression is presented in the last column of Table 4.

results suggest that the increasing effect of managerial ability on median employee pay may be at least partially, if not fully, mediated by employee productivity.⁸ In other words, more able managers likely induce higher employee productivity, which in turn leads to the observed higher amount of employee compensation.

Furthermore, equation (1) is re-estimated by adding LABORPROD as another explanatory variable and the results are reported in Table 4.⁹ After controlling for the effect of employee productivity, in the regression of median employee pay (LEMPPAY) on managerial ability the coefficient on MASCORE is no longer statistically significant. On the other hand, the coefficient on LABORPROD is significantly positive. Again, this is consistent with the results from the previous analysis suggesting that the increasing effect of managerial ability on median employee pay may be mediated by employee productivity.

An interesting finding from Table 4 is that CEO compensation does not seem to be associated with employee productivity. However, the increasing effect of managerial ability on CEO compensation remains statistically significant even after controlling for the effect of employee productivity in the regression of CEO pay. The first column in Table 4 also shows a significantly positive coefficient on MASCORE when controlling for the effect of employee productivity in the regression of CEO-median employee pay ratio on managerial ability. This is not surprising based on the results of the two other regressions in Table 4. Since employee productivity mediates and therefore subsumes the positive effect of managerial ability on median employee pay, the effect of managerial ability on the pay ratio is now solely driven by the increasing effect of managerial ability on CEO compensation, the numerator of the CEO-median employee pay ratio.

CONCLUSION

This paper investigates whether managerial ability affects the CEO-median employee pay gap by studying the effect of managerial ability on not only the CEO-median employee pay ratio but also on the two components of the ratio separately. The main results show that managerial ability is positively associated with both CEO total compensation and median employee total compensation. However, the association between managerial ability and the CEO-median employee pay ratio is not statistically significant. Furthermore, the increasing effect of managerial ability on median employee pay may be mediated by the increasing effect of managerial ability on employee productivity.

The findings in this study contribute to the literature on managerial ability, CEO compensation, as well as employee compensation. Moreover, the results in this paper suggest that CEO compensation and lower-level employee compensation are determined by some shared factors as well as some distinct ones that only affect one compensation but not the other. Future studies that examine the determinants of CEO-employee pay ratio or employee compensation should take this into consideration. Finally, the examination of determinants of median employee compensation in this study is subject to a limitation – the absence of employee characteristics such as employee education, gender, age, or work experience due to data availability. Future research with access to information about employee demographics can incorporate those

⁸ These results should be taken with caution as the data used for the analysis are not obtained from a randomized experiment that mitigates the influence of other non-treatment factors.

⁹ The SIZE variable is replaced by the logarithm of total assets (LNASSETS) to mitigate potential multicollinearity as both SIZE and the employee productivity measure are based on sales revenues.

attributes to further study the interplay among managerial ability, employee characteristics, productivity, and compensation.



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Table 1 Compensation Information by Industry

Industry	Number of Observations	Percent	Average CEO-Median Employee Pay Ratio	Average CEO Annual Total Compensation	Average Median Employee Annual Total Compensation
Agriculture, Forestry and Fishing	2	0.19	208.27	\$1,375,522	\$18,591
Mining	55	5.32	88.25	\$8,987,371	\$111,588
Construction	25	2.42	94.97	\$7,137,504	\$75,740
Manufacturing	544	52.61	203.10	\$8,291,504	\$65,591
Transportation & Public Utilities	67	6.48	163.71	\$8,416,849	\$63,708
Wholesale Trade	42	4.06	237.84	\$5,737,177	\$49,636
Retail Trade	107	10.35	519.86	\$7,208,240	\$22,437
Finance, Insurance, & Real Estate	6	0.58	115.25	\$7,975,895	\$70,881
Service	186	17.99	219.54	\$9,974,229	\$68,664
Overall	1,034	100.00	228.47	\$8,380,374	\$63,540

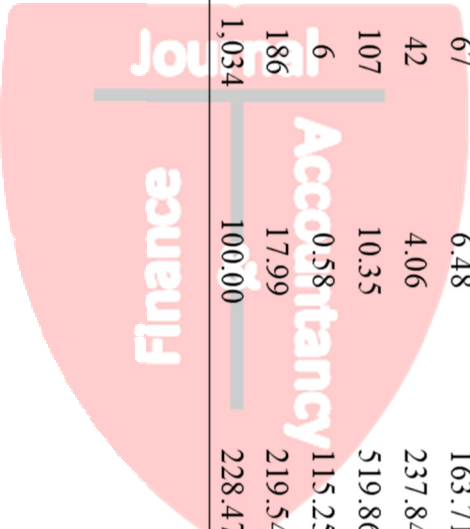


Table 2 Descriptive Statistics and Correlation Matrices
Panel A Descriptive Statistics

	Mean	Median	Standard Deviation	25 th Percentile	75 th Percentile
Pay Ratio	218.74	116.61	298.41	64.07	234.29
CEO Pay (\$)	8,209,814	6,338,208	6,549,689	3,765,675	10,894,821
Employee Pay (\$)	63,036	55,440	40,285	36,785	82,378
LPAYRATIO	4.82	4.77	1.05	4.18	5.46
LCEOPAY	15.62	15.66	0.82	15.14	16.2
LEMPPAY	10.81	10.92	0.78	10.51	11.32
MASCORE	0.01	-0.04	0.16	-0.1	0.1
SIZE	8.11	7.93	1.52	6.99	9.13
BTM	0.39	0.32	0.33	0.17	0.53
RET	0.08	0.05	0.35	-0.12	0.25
IN	0.11	0.10	0.09	0.06	0.15
RISK	0.09	0.08	0.04	0.06	0.10
DUAL	0.42	0.00	0.49	0.00	1.00
HHI	0.09	0.06	0.09	0.03	0.09
HMG	0.25	0.22	0.13	0.15	0.32
UNION	6.68	3.65	6.97	2.40	9.10
RDI	0.03	0.00	0.05	0.00	0.03
CAPI	380.32	51.54	1418	25.74	120.88

Note:
Panel
A of
Table
2

presents the descriptive statistics. LPAYRATIO is the natural logarithm of one plus CEO-median employee pay ratio. LCEOPAY is the natural logarithm of one plus CEO total compensation. LEMPPAY is the natural logarithm of one plus median employee total compensation. MASCORE is the managerial ability score constructed by Demerjian, Lev, and McVay (2012). SIZE is the natural logarithm of sales revenues. BTM is the ratio of book value of common stock to market value. RET is the 12-month industry-adjusted return of the common stock of the company. IB is operating income divided by total assets. RISK is the standard deviation of stock returns over the previous 60 months. DUAL is an indicator variable that equals one if the CEO also serves as the chairman of the board in the current year and zero otherwise. HHI is the Herfindahl index constructed with sales revenues. HMG is the mean partial correlation between the firm's stock returns and the equally weighted industry stock returns while holding market stock returns constant. UNION is the number of employees who are members of a union per 100 people in the industry in which the company operates. RDI is measured as reported R&D expenditures divided by total assets. CAPI is calculated as net property, plant, and equipment divided by the number of employees of the company.

Panel B Coefficients of Correlation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
LPAYRATIO (1)		0.124	0.684	0.299	0.683	-0.166	0.098	0.070	-0.288	0.123	-0.096	-0.033	0.009	-0.013	0.053
LCEOPAY (2)	0.141		-0.630	0.126	0.130	-0.030	0.062	-0.116	0.104	-0.020	-0.300	-0.177	0.106	0.307	0.272
LEMPPAY (3)	0.681	-0.563		0.135	0.435	-0.105	0.026	0.133	-0.301	0.109	0.142	0.096	-0.069	-0.234	-0.156
MASSCORE (4)	0.302	0.116	0.159		0.330	-0.152	0.100	0.314	-0.069	0.046	0.071	0.066	-0.056	0.155	0.074
SIZE (5)	0.737	0.111	0.489	0.304		-0.020	-0.021	-0.021	-0.399	0.153	0.001	0.058	0.136	-0.184	0.129
BTM (6)	-0.206	-0.027	-0.130	-0.196	-0.037		-0.372	-0.503	0.309	-0.059	0.016	0.167	0.092	-0.213	0.237
RET (7)	0.125	0.020	0.059	0.075	0.020	-0.395		0.263	-0.010	-0.022	0.050	-0.041	-0.067	0.095	-0.029
IB (8)	0.067	-0.164	0.143	0.294	-0.017	-0.588	0.285		-0.269	0.000	0.071	-0.001	-0.027	-0.023	-0.153
RISK (9)	-0.362	0.097	-0.346	-0.103	-0.449	0.328	-0.088	-0.321		-0.160	-0.025	0.120	-0.020	0.131	0.213
DUAL (10)	0.145	-0.039	0.145	0.053	0.137	-0.053	-0.005	0.011	-0.169		0.025	0.039	0.037	-0.093	0.011
HHI (11)	-0.093	-0.384	0.177	0.036	-0.003	0.125	0.004	0.047	0.025	0.036		0.496	0.008	-0.245	-0.100
HMG (12)	-0.030	-0.153	0.062	0.024	0.069	0.183	-0.069	-0.044	0.143	0.039	0.684		0.239	-0.371	0.245
UNION (13)	0.002	0.068	-0.084	-0.095	0.108	0.116	-0.028	0.031	-0.055	0.060	0.171	0.235		-0.215	-0.024
RDI (14)	0.048	0.292	-0.149	0.001	-0.120	-0.269	0.103	0.057	-0.020	-0.063	-0.442	-0.518	-0.141		-0.117
CAPI (15)	0.149	0.375	-0.180	-0.035	0.314	0.111	-0.016	-0.114	0.054	0.026	-0.094	0.169	0.314	-0.043	

Note: Panel B of Table 2 presents Spearman (lower left-hand side) and Pearson (upper right-hand side) correlation coefficient matrices. All variables are defined in the footnotes of Panel A of Table 2. Bold values indicate significance at the 0.05 level or stronger (based on two-tailed tests).

Table 3 Results of Main Tests

$$\begin{aligned}
 DV_i = & \alpha + \beta_0 \text{MASCORE}_i + \beta_1 \text{SIZE}_i + \beta_2 \text{BTM}_i + \beta_3 \text{RET}_i + \beta_4 \text{IB}_i \\
 & + \beta_5 \text{RISK}_i + \beta_6 \text{DUAL}_i + \beta_7 \text{HHI}_i + \beta_8 \text{HMG}_i + \beta_9 \text{UNION}_i \\
 & + \beta_{10} \text{RDI}_i + \beta_{11} \text{CAPI}_i + \beta_{12-18} \text{Industry Indicators}_i + \varepsilon_i
 \end{aligned}
 \tag{1}$$

	DV		
	LPAYRATIO	LCEOPAY	LEMPPAY
MASCORE	-0.168 (-0.82)	0.326** (2.35)	0.465*** (3.17)
SIZE	0.307*** (13.74)	0.367*** (24.20)	0.060*** (3.73)
BTM	-0.077 (-0.73)	-0.253*** (-3.50)	-0.180** (-2.36)
RET	0.057 (0.68)	0.132** (2.30)	0.058* (0.97)
IB	0.558 (1.39)	0.054 (0.20)	-0.536 (-1.87)
RISK	-1.542 (-1.64)	0.360 (0.56)	1.894*** (2.81)
DUAL	0.034 (0.62)	0.037 (1.00)	0.001 (0.03)
HHI	-0.841** (-2.23)	-0.763*** (-2.98)	0.140 (0.52)
HMG	1.084*** (3.32)	0.209 (0.94)	-0.987*** (-4.21)
UNION	-0.019*** (-3.91)	-0.007** (-2.23)	0.012*** (3.61)
RDI	-3.469*** (-5.24)	0.500 (1.11)	4.045*** (8.52)
CAPI	0.000*** (-4.87)	0.000* (-1.88)	0.000*** (5.25)
Intercept	2.689 (3.99)	12.024*** (26.25)	9.545*** (19.73)
Industry Effects	Controlled	Controlled	Controlled
Adjusted R ²	35.53%	51.24%	39.51%

Note: Table 3 reports estimates from the OLS regressions of the CEO total compensation, median employee total compensation, and CEO-median employee pay ratio (after the logarithm transformation), respectively, on managerial ability score and other control variables with the t-statistics reported in parentheses. ***/**/* denotes significance at 1%, 5% and 10% levels, respectively. Indicator variables for industry effects are included in the estimation but the coefficients are omitted from the table for brevity. All variables are as defined in Panel A of Table 2.

Table 4 Results with Employee Productivity

	DV		
	LPAYRATIO	LCEOPAY	LEMPAY
MASORE	0.527** (2.51)	0.390*** (2.63)	-0.162 (-1.10)
LABORPROD	-0.001*** (-9.26)	0.000 (-1.22)	0.000*** (11.96)
LNASSETS	0.315*** (14.65)	0.368*** (24.24)	0.053*** (3.52)
BTM	-0.081 (-0.79)	-0.254*** (-3.51)	-0.177** (-2.48)
RET	0.064 (0.79)	0.132** (2.31)	0.052 (0.93)
IB	0.485 (1.26)	0.047 (0.17)	-0.470* (-1.75)
RISK	-0.813 (-0.90)	0.427 (0.67)	1.236* (1.95)
DUAL	0.025 (0.48)	0.036 (0.98)	0.009 (0.25)
HHI	-0.985*** (-2.71)	-0.776*** (-3.03)	0.270 (1.06)
HMG	1.070*** (3.41)	0.208 (0.94)	-0.975*** (-4.44)
UNION	-0.018*** (-3.85)	-0.007** (-2.20)	0.011*** (3.58)
RDI	-3.841*** (-6.03)	0.465 (1.03)	4.380*** (9.83)
CAPI	0.000 (-0.11)	0.000 (-1.09)	0.000 (-0.69)
Intercept	2.893*** (4.46)	12.043*** (26.28)	9.360*** (20.65)
Industry Effects	Controlled	Controlled	Controlled
Adjusted R ²	40.51%	51.26%	46.94%

Note: Table 4 reports estimates from the OLS regressions of the CEO total compensation, median employee total compensation, and CEO-median employee pay ratio (after the logarithm transformation), respectively, on managerial ability score, employee productivity (LABORPROD) and other control variables with the t-statistics reported in parentheses. ***/**/* denotes significance at 1%, 5% and 10% levels, respectively. Indicator variables for industry effects are included in the estimation but the coefficients are omitted from the table for brevity. LABORPROD is calculated as the firm's sales revenue divided by the number of employees. All variables are as defined in Panel A of Table 2.