

CEO-employee pay ratio disclosure and dividend policy

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Abstract

We examine whether and how the magnitude of the CEO pay ratio affects dividend policy in the context of inequality-averse investors. Our results demonstrate a positive association between the two and remain robust to endogeneity concerns. We find that the CEO pay ratios positively affect dividends irrespective of whether CEO compensation contracts motivate risk-averse or risk-taking policy choices. This non-diverse effect on dividend policy across CEOs with different pay structures contradicts previous studies and highlights the wealth effect resulting from the SEC mandate. Further analyses reveal a negative effect of the pay ratio on cash holdings and investment inefficiency.

JEL CLASSIFICATION

G30, G32, G35, G38

1 | INTRODUCTION

The rise in Chief Executive Officer (CEO) compensation has been a topic of intense debate. The gap between CEO pay and worker pay has been increasing since the 1970s (Song et al., 2019), with few employees of some large companies earning significantly more than other employees with similar expertise, creating a wide distribution of earnings (Abowd et al., 1999; Goux & Maurin, 1999). According to the Economic Policy Institute, the average CEO of a large firm in the U.S. earns approximately 399 times the average worker's pay in 2021.¹ There have been calls

¹<https://www.epi.org/publication/ceo-pay-in-2021>.

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for increased transparency and accountability in executive pay. The amended Dodd-Frank Wall Street Reform and Consumer Protection Act requires U.S. publicly traded companies to disclose the ratio of the median total annual compensation of all employees to the total annual compensation of the CEO. The U.S. Securities and Exchange Commission (SEC) states that the new rule will provide shareholders with information that can be used to evaluate a CEO's compensation. M. Cheng and Zhang (2023) find that firms decrease the CEO-worker pay ratio after the SEC-mandated disclosure. Complementing this finding, Chang et al. (2023) show that firms alter the sensitivity of CEO pay to the changes in equity prices after the mandate. However, the literature has yet to examine whether and how the CEO pay ratio affects the dividend policy decisions of firms in the context of inequality-averse investors, which we address in this study.

We posit that the CEO pay ratio may affect dividend policy in two different ways. Following the managerial entrenchment view, investors may believe that a CEO with a higher pay ratio makes decisions that benefit the CEO at the expense of investors and adversely affect the firm's performance and dividend payouts. On the contrary, following the tournament effect (Lazear & Rosen, 1981), a high magnitude of CEO pay ratio may send a positive signal about the competency of the CEO and, as such, perceived by investors to be an indication of improved future profitability of the firm, and thus, a higher dividend payout.

Proponents of high CEO pay argue that CEOs are responsible for their firm's success resulting from their high managerial attributes (Bertrand & Schoar, 2003). Since these CEOs ensure higher firm valuation and positive cash flows, they deserve high compensation (Faleye et al., 2013; Mueller et al., 2017). On the other hand, critics of high CEO pay contradict this view by claiming that the pay disparity between CEOs and workers is excessive and can negatively impact the morale, productivity, and competitiveness of other employees (Boulouta & Pitelis, 2014; Gourevitch & Shinn, 2010) that could be harmful to firm value and detrimental to shareholders' wealth.

Based on a sample of 1,288 individual firms from 2017 to 2023, we find a positive association between CEO pay ratios and dividend payout. Surprisingly, in sharp contrast to Caliskan and Doukas (2015), the results show that CEOs with high vega compensation (i.e., risk-tolerant managers) also increase the dividend payout, providing evidence that the magnitude of CEO pay ratio may alter the high vega CEOs' choices of dividend policies, thus aligning their dividend policies with high delta CEOs. We find similar payout increases in firms run by CEOs with high inside debt and high relative leverage. Interestingly, challenging the findings of Caliskan and Doukas (2015), our results indicate that the positive association between the CEO pay ratio and dividend payout is stronger in the presence of high equity compensation. Focusing on the share repurchase activities of our sample firms, we find a positive effect of the CEO pay ratio on stock repurchases, further suggesting the distribution of wealth among investors by firms with higher CEO pay ratios.

Our baseline results hold when we divide CEOs into generalists and specialists following Custódio et al. (2013). Specifically, we find that the effect of the CEO pay ratio is higher if those CEOs are generalists. Thus, the results collectively reveal that investors' decision to leave firms with high CEO pay ratios (Pan et al., 2022) may not be well-founded since the magnitudes of CEO pay ratios may have a positive association with shareholders' wealth.

Additionally, our findings indicate that the magnitude of the CEO pay ratio is negatively associated with the level of firm cash holdings and positively associated with improved investment efficiency. These results further suggest that a high magnitude of CEO pay ratio may not necessarily indicate a detrimental effect on shareholders' wealth.

The article makes several contributions to literature. First, our study adds to the existing literature by showing a possible relationship between the magnitude of the CEO pay ratio and dividend policy. Previous studies find that CEO stealth compensation, proxied by unvested restricted stock grants, enables CEOs to make an extra 2% of the total compensation by receiving dividends on those unvested restricted stock grants (Minnick & Rosenthal, 2014). Our analyses complement the existing studies by showing that firms are likely to change their dividend payout

policies with the magnitude of the CEO pay ratio and alleviate investors' concerns about the financial well-being of the firms and CEOs' self-serving behavior.

Second, the mandatory requirement by the SEC allows us to identify how firms may respond to such legal requirements in anticipation of investors' reactions to the disclosed pay ratios. The finance literature has already established the sensitivity of different components of equity compensation to dividend policy (Caliskan & Doukas, 2015). Caliskan and Doukas (2015) suggest that the changes in the sensitivity of different components of CEO compensation can affect the dividend payments either positively or negatively. However, our results may challenge some of the findings of existing studies by showing that the magnitude of pay ratios alters the direction in which CEO compensation structure affects dividend policy. We thus provide support in favor of a possible new direction in which the CEO pay ratios alter dividend policy.

Third, to the best of our knowledge, our article is the first to show that firms improve their investment efficiency in response to the magnitude of the CEO pay ratio. Thus, our study contributes to the strand of the literature focusing on the relationship between firm-level legal disclosure and various firm policies (Doshi et al., 2013; Hermalin & Weisbach, 2012; Jayaraman & Wu, 2019).

Finally, the findings of this study may not be limited to dividend policy but may be applied broadly to payout policy, which includes share repurchases. Many firms consider dividends and repurchases as complementary or even interchangeable under certain conditions (Hsieh and Wang, 2008). As such, the results suggest that the underlying mechanisms influencing dividend policy may also shape broader payout decisions, thus reflecting the full range of corporate payout strategies. Firms often adjust their mix of dividends and repurchases in response to tax considerations (Pattenden & Twite, 2008), market conditions (Al-Yahyaee et al., 2011), and managerial incentives (Fenn & Liang, 2001), making it important to view payout decisions holistically. If repurchases serve as an alternative means of distributing cash to shareholders, the study's insights may apply not just to firms that pay dividends but also to those that favor repurchases.

2 | LITERATURE REVIEW

2.1 | CEO pay ratio disclosure mandate

The CEO pay ratio disclosure mandate requires publicly traded firms to disclose the ratio of the compensation of their CEOs or highest-paid executives to the median compensation of all other employees. The rationale behind the CEO pay ratio disclosure is to provide shareholders and the public with greater transparency and insight into a firm's compensation practices. The mandate is the first rule in the history of the SEC disclosure regime to require firms to disclose any information about how they pay their employees. This rule has significant implications for public disclosure as it changes the nature of corporate compensation coverage. The disclosure enables investors and stakeholders to understand better the extent of the pay gap within a firm. Specifically, the disclosure allows investors to identify management priorities and the extent of alignment between CEO compensation and shareholders' interests. The mandate was introduced as part of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 in the United States and is highly controversial (Piowar, 2015). Critics express grave concern about the reliability of the ratio because of the inherent complexity in calculating CEO pay. They argue that the ratio does not disclose enough information (Bank & Georgiev 2019)² and it could eventually backfire (Loh, 2016). For example, the ratio does not account for differences in job functions, experience, or geographic location affecting employee compensation. Piowar (2015) argues against the rule for lacking any clear goals or benefits,

²Please see <https://www.nysscpa.org/news/publications/the-trusted-professional/article/study-critiques-sec-pay-ratio-rule-calls-it-disclosure-by-soundbite-021219>. Also, see <https://clsbluesky.law.columbia.edu/2021/06/30/entrenchment-or-efficiency-ceo-to-employee-pay-ratio-and-the-cost-of-debt/>.

and since the rule is enacted based on several speculative benefits by commentators, “such as (i) considering vertical pay equity within firms; (ii) improving employee morale and productivity; (iii) evaluating the relative worth of a chief executive officer (“CEO”); (iv) increasing board accountability; (v) facilitating identification of a board’s strengths and weaknesses; and (vi) providing insight into a board’s relationship with its CEO.”³

However, proponents of the mandate argued that the size of the CEO pay ratio is useful for holding firms accountable for their compensation practices and can help mitigate the negative effects of a high magnitude of the CEO pay ratio (Boone et al., 2024; Kelly & Seow, 2016). For example, various investors and investor organizations strongly supported the disclosure requirement and urged the SEC to refrain from delaying the final rule.⁴ They argued that the compliance costs were relatively modest and that firms had ample time to prepare for the disclosure requirement. These investors claimed that such a requirement would promote internal equity within organizations and consider the competitiveness of the CEOs in terms of pay packages. Indeed, subsequent empirical analyses of Pan et al. (2022) identify lower institutional investments in firms with high pay ratios, suggesting investors’ bias in favor of equality. Recently, M. Cheng and Zhang (2023) show that CEOs with high pay ratios decrease their compensation in response to such disclosure requirements.

A high magnitude of the CEO pay ratio may discourage employees and other stakeholders by amplifying the perception of inequality and undermining their morale, while also inviting scrutiny from public stakeholders such as communities and governments. Studies show that employees working in firms with stark pay disparities report lower morale and diminished productivity, as they perceive such gaps as unfair (Boone et al., 2024; M. Cheng & Zhang, 2023). This sense of inequality, exacerbated by the high magnitude of pay ratios, may create a hostile work environment where employees feel undervalued, leading to reduced effort and higher turnover rates (Akerlof & Yellen, 1990; Kelly & Seow, 2016). As identified by M. Cheng and Zhang (2023), the negative reactions of Wells Fargo employees to their CEO’s pay ratio of 291 times the median worker salary illustrate the detrimental effects on workforce morale. Other stakeholders, such as governments and communities, are increasingly vocal about the societal implications of high CEO pay ratios. The saliency of pay ratios makes them a focal point for assessing corporate fairness and governance (Larcker & Tayan, 2020). Consequently, communities with high social capital often amplify their criticisms, pressuring firms to address perceived inequalities (Hoi et al., 2019).

Bank and Georgiev (2019) identify three possible consequences of the CEO pay ratio – i) informational, ii) behavioral, and iii) public disclosure. Stakeholders can use the informational dimension to better understand a firm’s approach to compensation and whether there are significant discrepancies between top executives and median employee compensation. This information can be vital for investors, who may use it to evaluate a firm’s long-term sustainability and social responsibility. The behavioral dimension aims to influence corporate decision-making in a substantive way, which can be evidenced by a firm’s initiative to alter the sensitivity of CEO compensation to equity price changes (Chang et al., 2023). Finally, public disclosure facilitates public reactions to income inequality, which has been a topic of intense debate (Bamberger et al., 2021; Tsui et al., 2018). Therefore, our examination of the impact of the CEO pay ratio on dividend payout emphasizes all three aspects identified by Bank and Georgiev (2019).

Park et al. (2001) suggest that the introduction of stricter reporting standards to mitigate information asymmetry and promote fairer pay structures may create a complex environment where firms must balance competitive compensation packages with investor expectations. On the one hand, greater disclosure fosters accountability, allowing market participants to assess whether executive pay reflects firm performance and strategic goals. On the other hand, increased transparency may expose firms to intensified market pressures, potentially influencing corporate governance decisions. The findings of the existing literature do not offer a definitive direction in which the magnitude of the pay ratio may have influenced dividend policy changes. A relatively high CEO pay ratio may either negatively or positively affect a firm’s reputation among shareholders. For example, Q. Cheng et al. (2017) suggest a

³https://www.sec.gov/news/statement/dissenting-statement-open-meeting-pay-ratio-disclosure#_ftn5.

⁴<https://www.sec.gov/comments/pay-ratio-statement/cil3-1690913-149701.pdf>.

positive relationship between a high CEO pay ratio and firm value and performance. Thus, they predict a beneficial effect of a high magnitude of the CEO pay ratio on shareholders' wealth. Further, LaViers et al. (2024) find a positive association between the magnitude of the CEO pay ratio and voluntary disclosure of firm-specific information, suggesting a less opportunistic behavior associated with dividend payout (Brockman et al., 2008) and, consequently, higher dividend payout (Deshmukh, 2003; Myers & Majluf, 1984). In sharp contrast, Mohan et al. (2018) show that a high CEO pay ratio deters consumers from buying products from those firms, suggesting that such consumer behavior is attributable to their social preferences against income inequality. This view suggests a loss of firm performance and dividend payout. If inequality-averse investors are concerned about the high benefits derived by CEOs, they may either sell their stocks or demand a higher share of profits in response to a high magnitude of the CEO pay ratio. Complementing Mohan et al. (2018), Pan et al. (2022) find that firms with higher CEO-employee pay ratio disparity experience significantly lower abnormal returns, suggesting that investors do not favor such inequality. Analyzing firms' reactions to the disclosure requirement, M. Cheng and Zhang (2023) identify that CEOs with high (low) relative pay ratios decrease (increase) their pay ratios after the mandate, thus contributing to pay equality and social welfare.⁵

In their recent work, Boone et al. (2024) find that, though the pay ratio offers minimal incremental value, a high magnitude of CEO pay ratio may have unintended consequences for the employees' productivity and growth by negatively impacting the perceptions of their pay. Therefore, it may be argued that the channels through which a high magnitude of pay ratio impacts employees' perceptions of their financial interests may also affect investors' perceptions regarding the returns on their investments. Following the three-factor conceptual framework of Bordalo et al. (2022), we argue that a significant contrast in the CEO pay ratio against industry or geographic peers may induce investors to interpret the high magnitude of pay ratio as evidence of CEO self-dealing or prioritization of personal wealth, especially when the pay ratio deviates significantly from peers' pay ratios. Second, since surprise magnifies the effect of disclosure, if the CEO pay ratio of a firm is much higher than expected based on its size, performance, or industry norms, stakeholders may view it as indicative of governance issues and a CEO exerting undue control over the compensation practice. Prominence, the third factor, may induce investors to focus on the size of the pay ratio while ignoring underlying explanations for its value. Since the magnitude of a pay ratio is more impactful under certain circumstances (Bank & Georgiev, 2019), investors may associate a high magnitude of pay ratio with CEO entrenchment, enabling the CEO to accumulate excessive power, often at the expense of shareholders and organizational performance.

Additionally, following the "substitute model" of La Porta et al. (2000), we argue that CEOs may increase dividend payouts to reinforce their reputation in the executive labor market, as a high magnitude of CEO pay ratio may be detrimental to CEO reputation. In sum, though the existing studies have examined several possible consequences of the CEO pay ratio disclosure mandate, they have overlooked an important aspect of the magnitude of the pay ratio that may profoundly impact shareholders' wealth.

2.2 | CEO compensation and dividend policy

The compensation structure of a CEO typically includes a mix of fixed and variable components. The fixed component includes a base salary, benefits, and perquisites, while the variable component includes bonuses, stock options, restricted stock units, and other forms of equity-based compensation. Studies focusing on the impact of CEO compensation structure on dividend policy find that different components of compensation structure impact a

⁵This decrease might also be driven by the sharp CEO pay decline in 2022 that remains enormously high by the massive compensation contracts granted by corporate boards (CEO pay slightly declined in 2022. (2023, September 21)) Economic Policy Institute. Available at: <https://www.epi.org/press/despite-slight-decline-ceos-made-344-times-as-much-as-the-typical-worker-in-2022-ceo-pay-has-soared-1209-2-since-1978/#:~:text=CEO%20compensation%20at%20the%20top,a%2014.8%25%20decrease%20from%202021.>

firm's dividend policy differently. For example, Caliskan and Doukas (2015) identify that inside debt (i.e., pensions and deferred compensations) and compensation with high delta (i.e., high sensitivity of equity compensation to stock price changes) induce CEOs to increase the propensity to pay dividends. Alternatively, high vega (i.e., high sensitivity of equity compensation to stock return volatility) reduces the propensity to pay dividends. These findings suggest that CEOs with high delta are more likely to pay dividends to preserve their personal wealth and satisfy investors. This is consistent with Coles et al. (2006), that delta is negatively, and vega is positively associated with risky policy choices, and with Cassell et al. (2012), that higher inside debt reduces the riskiness of corporate policies. In the context of banks, Onali et al. (2016) find that CEO equity ownership is negatively associated with dividend payout. Chang et al. (2023) identify that the pay ratio disclosure alters the sensitivity of CEO wealth to the stock price change (delta) by changing the compensation mix and reducing reliance on stock-based compensation. Therefore, we expect a corresponding effect of the CEO pay ratio on corporate dividend policy.

3 | EMPIRICAL ANALYSES

3.1 | Data source

Since we focus on the firms required to disclose pay ratios, we start by using all the CEO pay ratio data available on the University of Alabama library website.⁶ We match the firms in the dataset with the Compustat database and obtain firm-level data from 2017 to 2023. We obtain the stock return data from the Center for Research in Security Prices (CRSP), compensation data from ExecuComp, institutional investors data from the Thomson Reuters Stock Ownership (13-F), board of directors data from the Institutional Shareholder Services (ISS) director, and the Environmental, Social, and Governance (ESG) data from Refinitiv ESG databases. We exclude all the utility firms (Standard Industrial Classification code (SIC) codes 4900-4999) and financial firms (SIC codes 6000-6999). The sample covers 1,288 firms with 5,499 firm-year observations. We winsorize all the continuous variables at the 5th and 95th percentile to reduce the influence of outliers.

3.2 | Empirical model and variable measurement

To examine the effect of the magnitude of CEO pay ratio on dividend policy, we follow the dividend payout measures of Attig et al. (2021) to create five different measures of dividend payout: a) *Payout Ratio* – the ratio of cash dividends to net income before extraordinary items; b) *Dividend/Cash Flow* – dividends scaled by cash flow; c) *Total Payout Ratio* – the sum of cash dividends and share repurchases scaled by net income before extraordinary items; d) *Dividend/Sales* – cash dividends scaled by total sales; and e) *Dividends per Share*. We take the lagged value of the independent and control variables to alleviate simultaneity concerns. Specifically, we use the following empirical model:

$$\begin{aligned} \text{Dividend Payout}_t = & \beta_0 \log(\text{Pay ratio})_{t-1} + \beta_1 \text{R\&D/Total Assets}_{t-1} + \beta_2 \text{Capex/Total Assets}_{t-1} \\ & + \beta_3 \text{Market/Book}_{t-1} + \beta_4 \text{Profitability}_{t-1} + \beta_5 \text{Retained Earnings/Total Assets}_{t-1} \\ & + \beta_6 \text{Size}_{t-1} + \beta_7 \text{Change in Assets}_{t-1} + \beta_8 \text{Return Volatility}_{t-1} + \beta_9 \text{Cash}_{t-1} \\ & + \beta_{10} \text{Sales Growth}_{t-1} + \beta_{10} \text{Cash Flow Volatility}_{t-1} + \varepsilon_{t-1} \end{aligned} \quad (1)$$

Where *R&D/Total Assets* is the ratio of R&D expenditures scaled by the book value of total assets; *Capex/Total Asset* is the capital expenditure scaled by the book value of total assets; *Market/Book* is defined as the market value

⁶Please see "Siciliano, M. (2023). Fiscal 2023 Pay Ratios. [Data set]. <https://ir.ua.edu/items/4005b4c7-ce71-4c01-9fb7-aa62398cf9d8/full>."

of equity scaled by the book value of equity; *Profitability* is the sum of income before extraordinary item plus deferred taxes, and investment tax credit, minus preferred dividends; *Retained Earnings/Total Assets* is the retained earnings scaled by the book value of total assets; *Size* is the percentage of firms that have smaller market equity in a specific year; *Change in Assets* is the percentage change in assets from year $t-1$ to t ; *Return Volatility* is the standard deviation of daily stock return; *Cash* is the cash and marketable securities scaled by total assets; *Sales Growth* is the changes in sales from year $t-1$ to t ; and *Cash Flow Volatility* is the standard deviation of a firm's cash flows from operations from year $t-5$ to $t-1$. We include industry fixed effects to control for unobservable industry characteristics that are common within industries but vary across industries, and that could influence the dependent variable. We also include year fixed effects to control for factors that are constant across all observations in a given year but vary over time.⁷ Appendix A provides detailed definitions of all variables.

4 | EMPIRICAL RESULTS

4.1 | Descriptive statistics

Panel A of Table 1 provides the descriptive statistics of the variables used in the main analyses. It shows that the compensation of an average CEO is 170 times higher than the median employee's salary in our sample firms. Panel A also indicates that the median CEO's compensation in our sample is \$5.852 million, which suggests that the median employee compensation is \$65,703. The mean value of the *Payout Ratio* is 0.149, suggesting that 14.9% of net income before extraordinary items is distributed among shareholders as dividends. Regarding other firm characteristics, the average firm spends 4.5% of its total assets on R&D and 4% of its total assets on capital expenditure. Coles et al. (2006) find that the average R&D expenditure scaled by assets is 0.04, whereas capital expenditure net of sales of property, plant, and equipment, scaled by assets, is 0.07. Since R&D expenditures are considered high-risk investments compared to capital expenditures (Bhagat & Welch, 1995; Kothari et al., 2002), the higher mean value of R&D expenditures in our sample suggests that the average firm in our sample is likely to be more risk-taking. We also perform univariate analysis between firms with high CEO pay ratios and low CEO pay ratios. The results in Panel B indicate that the mean values of most of the variables are significantly different between the two groups.

In Panel C, we provide year-wise summary statistics of the lagged CEO pay ratio, lagged median worker pay in dollars, and lagged CEO pay in dollars for our sample firms during 2018–2023. This provides a detailed picture of the trend in the CEO pay ratios since its enactment. From the first table of Panel C, we find a sudden decline in the average lagged CEO pay ratios during 2020–21, corroborating with COVID-19 years. However, during 2022, we find that the lagged CEO pay ratio experienced a steep rise (from 160.751 to 211.272). When we compare the year-wise pay ratios with M. Cheng and Zhang (2023), we find that our year-wise CEO pay ratios are generally higher. As a result, the average pay of median workers for each year in our sample is lower than that of M. Cheng and Zhang (2023). We also find that while the mean pay for the workers for each year remains almost the same, there is an upward trend in the median pay. Finally, the third table of Panel C shows that though the lagged average CEO compensation increases for the first two years, it declines during the COVID-19 years, after which it increases

⁷There are specific reasons behind controlling for industry-fixed effect instead of firm-fixed effect. First, while CEO salary is time-variant, since our dataset is short panel data ranging from 2017 to 2023, the firm-fixed effect may absorb a significant part of the variation in the CEO pay ratio. This may lead to multicollinearity issues, which makes it challenging to separate the effect of the CEO pay ratio on dividend payout from the firm-specific effects. Second, we find that over the sample period from 2018 to 2023 (we use the lagged value of CEO pay ratio), the average of the changes in CEOs' pay ratios is about 1.59%. In such a situation, using firm-fixed effects could lead to a biased estimation of the effect of the CEO pay ratio, as the model might not distinguish whether changes in dividend payout ratio are due to changes in CEOs' pay ratio or other firm-level time-invariant factors. Firm-fixed effects can also exacerbate endogeneity concerns, especially if the CEO pay ratio and dividend payout are jointly determined by some firm-specific policy or long-term planning not captured by the fixed effects.

TABLE 1 Summary statistics of all the variables in the main analysis.

PANEL A: Descriptive statistics						
Variable	N	Mean	Std Dev	Q1	Median	Q3
Payout Ratio _t	5499	0.149	0.234	0.000	0.000	0.249
Dividend/Cash Flow _t	5499	0.099	0.147	0.000	0.000	0.168
Total Payout Ratio _t	5499	0.450	0.741	0.000	0.263	0.789
Dividend Per Share _t	5499	0.535	0.827	0.000	0.000	0.803
Dividend/Sales _t	5493	0.014	0.021	0.000	0.000	0.022
Dividend Yield _t	5490	0.010	0.018	0.000	0.000	0.015
Pay Ratio _{t-1}	5499	170.30	691.45	43.87	89.08	173.22
Total Compensation _{t-1}	5499	8,558,480	34,238,760	3,253,740	5,852,900	9,903,700
R&D/Total Assets _{t-1}	5499	0.045	0.087	0.000	0.005	0.050
Capex/Total Assets _{t-1}	5499	0.040	0.045	0.013	0.026	0.048
Market/Book _{t-1}	5499	5.097	7.716	1.570	2.813	5.358
Profitability _{t-1}	5499	0.038	0.155	0.005	0.063	0.114
Retained Earnings/Total Assets _{t-1}	5499	-0.046	1.029	-0.109	0.142	0.382
Firm Size _{t-1}	5499	3.961	0.592	3.714	4.127	4.407
Change in Assets _{t-1}	5499	0.158	0.391	-0.007	0.061	0.182
Return Volatility _{t-1}	5499	0.122	0.067	0.078	0.105	0.148
Cash _{t-1}	5499	0.184	0.206	0.039	0.103	0.247
Sales growth _{t-1}	5499	0.172	0.444	0.003	0.092	0.222
Cash flow volatility _{t-1}	5499	1.352	0.430	1.150	1.415	1.622

TABLE 1 (Continued)

PANEL B: Univariate analysis for high and low CEO pay ratio													
Variable	High CEO pay ratio				Low CEO pay ratio				High - Low				
	N	Mean	Std Dev	Q1	Median	Q3	N	Mean	Std Dev	Q1	Median	Q3	t-value
Payout Ratio	2750	0.200	0.250	0.000	0.075	0.351	2749	0.099	0.204	0.000	0.000	0.090	16.37***
Dividend/Cash Flow	2750	0.131	0.155	0.000	0.071	0.235	2749	0.067	0.130	0.000	0.000	0.071	16.66***
Total Payout Ratio	2750	0.604	0.769	0.059	0.510	0.980	2749	0.295	0.678	-0.001	0.042	0.494	15.83***
Dividend Per Share	2750	0.778	0.939	0.000	0.363	1.343	2749	0.292	0.607	0.000	0.000	0.321	22.79***
Dividend/Sales	2750	0.018	0.022	0.000	0.009	0.029	2743	0.010	0.019	0.000	0.000	0.009	14.83***
Dividend Yield	2745	5.297	14.357	0.000	0.422	2.654	2745	0.775	3.497	0.000	0.000	0.241	16.03***
Pay Ratio	2750	295.85	961.30	122.13	173.21	278.94	2749	44.71	23.63	25.39	43.87	63.58	13.69***
Total Compensation	2750	12674.35	47868.62	5940.38	8965.45	13929.52	2749	4441.11	4391.87	2039.36	3665.19	5749.48	8.98***
R&D/Total Assets	2750	0.022	0.046	0.000	0.002	0.025	2749	0.067	0.110	0.000	0.010	0.096	19.72***
Capex/Total Assets	2750	0.036	0.033	0.014	0.027	0.045	2749	0.044	0.054	0.012	0.026	0.053	7.25***
Market/Book	2750	5.145	8.035	1.641	2.902	5.182	2749	5.048	7.384	1.486	2.694	5.595	0.460
Profitability	2750	0.072	0.105	0.035	0.076	0.119	2749	0.005	0.186	-0.045	0.044	0.105	16.57***
Retained Earnings/Total Assets	2750	0.205	0.457	0.030	0.216	0.423	2749	-0.297	1.335	-0.392	0.057	0.324	18.63***
Firm Size	2750	4.234	0.362	4.094	4.357	4.489	2749	3.688	0.649	3.401	3.829	4.143	34.53***
Change in Assets	2750	0.131	0.351	-0.005	0.052	0.146	2749	0.185	0.426	-0.012	0.076	0.229	5.19***
Return Volatility	2750	0.106	0.056	0.069	0.092	0.127	2749	0.138	0.072	0.089	0.120	0.167	18.26***
Cash	2750	0.120	0.130	0.034	0.079	0.152	2749	0.248	0.245	0.049	0.157	0.400	24.32***
Sales growth	2750	0.128	0.294	0.008	0.081	0.185	2749	0.215	0.551	-0.002	0.107	0.274	7.32***
Cash flow volatility	2750	1.508	0.339	1.349	1.537	1.723	2749	1.196	0.455	0.989	1.263	1.478	28.77***

Continues

TABLE 1 (Continued)

PANEL C: Year-wise summary statistics						
Pay ratio	N	Mean	Std dev	Lower quartile	Median	Upper quartile
2018	848	138.534	218.456	40.470	80.661	150.651
2019	875	197.614	1,393.870	41.318	85.289	169.506
2020	908	142.827	217.869	40.933	84.443	162.771
2021	932	160.751	306.650	40.254	87.093	174.639
2022	948	211.272	799.250	53.057	106.221	193.027
2023	988	168.327	390.752	49.591	95.303	183.060
Median Worker Pay	N	Mean (\$)	Std Dev (\$)	Lower Quartile (\$)	Median (\$)	Upper Quartile (\$)
2018	848	49,116	39,981	57,108	56,760	64,919
2019	875	49,582	55,429	54,819	61,558	69,514
2020	908	50,606	31,176	56,153	65,177	74,122
2021	932	49,240	38,602	54,590	63,996	76,058
2022	948	49,160	37,818	60,082	66,948	79,019
2023	988	54,294	27,703	80,858	70,898	60,366
CEO Pay	N	Mean (\$)	Std Dev (\$)	Lower Quartile (\$)	Median (\$)	Upper Quartile (\$)
2018	848	6,804,220	8,734,070	2,627,240	4,578,320	8,603,340
2019	875	9,798,040	77,260,800	2,872,130	5,250,250	9,292,240
2020	908	7,227,840	6,792,290	3,034,030	5,503,760	9,140,070
2021	932	7,915,360	11,837,370	3,061,670	5,573,650	9,533,570
2022	948	10,386,240	30,226,180	4,192,510	7,111,270	11,597,480
2023	988	9,139,150	10,825,980	4,010,800	6,757,790	11,051,650

TABLE 1 (Continued)

Mean	Payout ratio	Dividend/ Cash flow	Total_payout_ratio	Dividend per share	Dividend/ sales	Dividend yield
2018	0.156	0.098	0.521	0.494	0.014	0.011
2019	0.161	0.106	0.434	0.527	0.014	0.010
2020	0.144	0.100	0.331	0.484	0.014	0.009
2021	0.138	0.092	0.431	0.514	0.013	0.008
2022	0.141	0.095	0.505	0.580	0.014	0.012
2023	0.158	0.102	0.476	0.600	0.014	0.011

Note: The table reports the descriptive statistics of the variables for the sample period 2017-2023. The sample contains 5499 observations covering 1288 unique firms. The sample excludes all the missing observations and utility firms (SIC codes 4900-4999) or financial firms (SIC codes 6000-6999). *Payout Ratio* is the ratio of cash dividends declared on common/ordinary shares to net income before extraordinary items; *Dividend/Cash Flow* is the ratio of cash dividends declared on common/ordinary shares to the sum of net income plus depreciation and amortization; *Total Payout Ratio* is the ratio of cash dividends and repurchases to net income before extraordinary items. The repurchase amount is the purchase of common and preferred stock minus a decrease in the value of preferred stock outstanding; *Dividend Per Share* is the cash dividends divided by the average or actual number of common/ordinary shares outstanding, adjusted for securities identified as common/ordinary stock equivalents as reported by the company, adjusted for all stock splits and stock dividends that occurred during the period; *Dividend/Sales* is the cash dividends divided by sales; *Dividend Yield* is the dividend per share scaled by stock price. Panel A reports the summary statistics for the full sample. Panel B reports the univariate analysis for the high and low pay ratio. Panel C reports the year-wise summary statistics. *Log(CEO Pay Ratio)* is the natural logarithm of a CEO's actual pay ratios as disclosed by firms; *R&D/Total Assets* is the research and development spending scaled by sales; *Capex/Total Assets* is the capital expenditure scaled by total assets; *Market/Book* is the market value of equity divided by book value of equity; *Profitability* is the earnings before extraordinary items minus preferred dividends plus deferred taxes and investment tax credit; *Retained Earnings/Total Assets* is the retained earnings scaled by total assets; *Size* is the percentage of firms with smaller market equity at time *t*; *Change in Assets* is the percentage change in assets from year *t*-1 to *t*; *Return Volatility* is the standard deviation of daily stock returns. *Cash* is the cash and marketable securities scaled by total assets. *Sales Growth* is the percentage change in sales from year *t*-1 to *t*. *Cash Flow Volatility* is the standard deviation of a firm's cash flows from operations (OANCF) from year *t*-5 to *t*-1. Appendix A provides a detailed definition of all the variables used in the study. Panel C presents the year wise summary statistics; the symbols ***, **, and * are the statistical significance based on two-sided tests at the 1%, 5%, and 10% levels, respectively.

sharply. Overall, the summary statistics in Panel C support the notion that CEOs get paid substantially higher than median workers.

4.2 | Main regressions

In columns (1) to (5) of Panel A of Table 2, following Attig et al. (2021), we use five alternative definitions of the dividend payout. Since CEO pay ratios are less likely to change over a relatively short period, we use industry-fixed effects rather than firm-fixed effects in our regressions (Amir et al., 2016). We consider Fama-French 48 industry and year fixed effects in the regression models to control for differences in performance across industries that are constant over time, such as differences in industry structure, technology, or regulation (Fama & French, 1997). We also cluster the standard errors at the firm level. For all the alternative measures of dividend payout, we find a positive and significant effect of the CEO pay ratio on dividend payouts. In economic terms, the coefficient of *log(CEO Pay Ratio)* represents an increase of \$57,382 for the average firm in our sample.⁸ In column (6) of Panel A, we also find a positive relationship between the CEO pay ratio and dividend yield.⁹ These results are consistent with our hypothesis that firms use dividends to assure investors that the CEOs are working to advance investors' interests and not to their own benefit at the expense of investors.

To extend our findings, in Panel B, we use *Changes in Payout Ratio* as our dependent variable to examine whether the CEO pay ratio is associated with changes in the dividend payout ratio. We find a positive and significant effect of the CEO pay ratio on the changes in the dividend payout ratio. This result reinforces our baseline findings, suggesting that the disclosed magnitude of the CEO pay ratio may be positively associated with increased dividend payouts.

4.3 | The effect on share repurchases

To complement our previous findings on the association between the magnitude of the CEO pay ratio and dividend payout, we also examine whether the CEO pay ratio influences firms' share repurchase decisions. The decision to repurchase shares can be affected by two distinct objectives – first, to send a positive signal to the market about firms' future earnings and profitability (Bhattacharya, 1979; Miller & Rock, 1985) and second, to mitigate the overinvestment problems (Jensen, 1986). However, Grullon and Michaely (2004) find no support for the signaling hypothesis and no evidence that share repurchases are associated with improved future profitability. Instead, they find that share repurchases are linked with declining free cash flow, substantiating Jensen's (1986) view of decreasing overinvestment. The literature shows that large firms have gradually replaced cash dividends with repurchases (Almeida et al., 2016; Farre-Mensa et al., 2014; Grullon & Michaely, 2002;). However, with the restrictions imposed by federal and local governments on the potential share repurchases by firms with higher CEO pay ratios (Chang et al., 2023; Posner, 2018; Tsekova, 2020; Warren, 2018), the magnitude of the CEO pay ratio may not have a substantial economic effect on repurchases.

⁸In column (1), the coefficient of *log(CEO Pay Ratio)_{t-1}* is 0.010. In economic terms, this indicates a 0.010% increase in the payout ratio for a 1% increase in the CEO Pay Ratio. The dependent variable, *Payout Ratio*, is calculated as the ratio of cash dividends declared on common/ordinary shares (DVC) to net income before extraordinary items (IB). The average value of net income before extraordinary items for our sample firms is \$573.82 million and the coefficient on *log(CEO Pay Ratio)* is 0.010. Therefore, we calculate the impact of a 1% increase in the CEO Pay Ratio on dividends declared (DVC) as: $[(0.010/100) * \$573.82] = \$57,382$. In other words, A 1% increase in the CEO Pay Ratio is associated with an estimated average of \$57,382 increase in cash dividends (DVC) when net income (IB) is \$573.82 million.

⁹Given the sticky nature of dividends (Guttman et al., 2010), it is crucial to determine the effect of the CEO pay ratio not only on the extensive margin but also on the intensive margin of dividends. This analysis is also critical because some firms may have initiated or omitted to pay dividends before the announcement of the mandate. Therefore, we focus on dividend initiation and omission and find statistically insignificant relationships. The results indicate that though the CEO pay ratio is positively associated with dividend payout, it is unlikely to alter the dividend policy related to initiation and omission.

While it may be argued that dividends represent a more committed payout to the stockholders than share repurchases (Brav et al., 2005), firms typically initiate dividends when they are confident about their profitability and cash balance (Bulan et al., 2007). This commitment may signal financial strength and alignment with shareholder expectations, enhancing trust. Many firms adopt hybrid policies to balance the risks of relatively higher commitment

TABLE 2 CEO pay ratio and dividend payouts.

	Dependent variables:					
	Payout Ratio _t	Dividend/Cash Flow _t	Total Payout Ratio _t	Dividend Per Share _t	Dividend/Sales _t	Dividend Yield _t
	(1)	(2)	(3)	(4)	(5)	(6)
<i>log(CEO Pay Ratio)_{t-1}</i>	0.010** (2.493)	0.007*** (2.643)	0.040*** (3.172)	0.058*** (3.831)	0.001** (2.354)	0.648*** (3.688)
<i>R&D/Total Assets_{t-1}</i>	-0.067 (-0.854)	-0.057 (-1.075)	0.112 (0.480)	0.205 (0.738)	-0.002 (-0.229)	-1.358 (-0.418)
<i>Capex/Total Assets_{t-1}</i>	-0.253** (-2.323)	-0.321*** (-5.000)	-0.935*** (-3.156)	-1.112** (-2.440)	-0.013 (-1.090)	-15.462** (-2.309)
<i>Market/Book_{t-1}</i>	0.001 (1.304)	0.001** (2.347)	0.004** (2.366)	0.006** (2.379)	0.000** (2.075)	-0.004 (-0.190)
<i>Profitability_{t-1}</i>	0.166*** (4.931)	0.123*** (5.292)	0.788*** (7.989)	0.720*** (5.386)	0.028*** (6.772)	3.778*** (2.955)
<i>Retained Earnings/Total Assets_{t-1}</i>	0.004 (0.636)	0.004 (1.100)	0.015 (1.022)	-0.006 (-0.261)	-0.000 (-0.001)	-0.071 (-0.241)
<i>Log(Total Assets)_{t-1}</i>	-0.014 (-0.932)	-0.015 (-1.409)	-0.046 (-1.122)	0.053 (0.985)	-0.001 (-0.665)	-1.412** (-2.156)
<i>Change in Assets_{t-1}</i>	-0.020** (-2.522)	-0.019*** (-3.869)	-0.072** (-2.321)	-0.010 (-0.349)	-0.002** (-2.505)	0.281 (0.667)
<i>Return Volatility_{t-1}</i>	-0.781*** (-12.479)	-0.525*** (-13.243)	-1.265*** (-6.748)	-3.118*** (-13.459)	-0.079*** (-13.335)	-18.979*** (-5.544)
<i>Cash_{t-1}</i>	-0.031 (-1.009)	-0.006 (-0.287)	0.053 (0.567)	-0.079 (-0.703)	-0.001 (-0.163)	-3.520** (-2.030)
<i>Sales Growth_{t-1}</i>	-0.014** (-2.255)	-0.009** (-2.285)	-0.028 (-1.467)	-0.027 (-1.207)	-0.002** (-2.294)	-0.949*** (-3.639)
<i>Cash Flow Volatility_{t-1}</i>	0.034* (1.764)	0.024* (1.789)	0.182*** (3.577)	0.192*** (2.630)	0.004 (1.645)	7.566*** (5.486)

TABLE 2 (Continued)

PANEL A: CEO pay ratio and dividend payout measures						
	Dependent variables:					
	Payout Ratio _t	Dividend/Cash Flow _t	Total Payout Ratio _t	Dividend Per Share _t	Dividend/Sales _t	Dividend Yield _t
	(1)	(2)	(3)	(4)	(5)	(6)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	5,499	5,499	5,499	5,499	5,493	5,490
R ²	0.1961	0.2388	0.1221	0.2725	0.2356	0.2176
PANEL B: CEO pay ratio and changes in dividend payout ratio						
	Dependent variables: Change in payout ratio _t (1)					
Log(CEO Pay Ratio) _{t-1}	0.634*** (8.31)					
R&D/Total Assets _{t-1}	-0.103 (-0.14)					
Capex/Total Assets _{t-1}	0.644 (0.59)					
Market/Book _{t-1}	0.001 (0.26)					
Profitability _{t-1}	-0.403 (-0.99)					
Retained Earnings/Total Assets _{t-1}	-0.018 (-0.35)					
Log(Total Assets) _{t-1}	-0.201 (-1.41)					
Change in Assets _{t-1}	-0.026 (-0.20)					
Return Volatility _{t-1}	3.896*** (4.76)					
Cash _{t-1}	1.282*** (4.06)					
Sales Growth _{t-1}	0.100 (1.00)					
Cash Flow Volatility _{t-1}	-0.424** (-2.52)					

(Continues)

TABLE 2 (Continued)

PANEL B: CEO pay ratio and changes in dividend payout ratio	
	Dependent variables: <i>Change in payout ratio_t</i> (1)
Industry FE	Yes
Year FE	Yes
Number of Observations	4138
R ²	0.5219

Note: The table reports the results of baseline regressions on the relationship between the CEO pay ratio and the dividends based on the four measures following Attig et al. (2021). In Panel A, in column (1), *Payout Ratio* is the ratio of cash dividends declared on common/ordinary shares to net income before extraordinary items; in column (2), *Dividend/Cash Flow* is the ratio of cash dividends declared on common/ordinary shares to the sum of net income plus depreciation and amortization; in column (3), *Total Payout Ratio* is the ratio of cash dividends and repurchases to net income before extraordinary items. The repurchase amount is the purchase of common and preferred stock minus a decrease in the value of preferred stock outstanding; and in column (4), *Dividend Per Share* is the cash dividends divided by the average or actual number of common/ordinary shares outstanding, adjusted for securities identified as common/ordinary stock equivalents as reported by the company, adjusted for all stock splits and stock dividends that occurred during the period; in column (5), *Dividend/Sales* is the cash dividends divided by sales. In column (6), *Dividend Yield* is the dividend per share scaled by the stock price. In Panel B, *Change in Payout Ratio* is the change in the *Payout Ratio* from year $t-1$ to t . *Log(CEO Pay Ratio)* is the natural logarithm of a CEO's actual pay ratios as disclosed by firms. All the control variables are defined in Appendix A. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity (White, 1980) and firm clustering (Petersen, 2008). The symbols ***, **, and * indicate statistical significance based on two-sided tests at the 1%, 5%, and 10% levels. The coefficients of the intercepts are suppressed.

associated with dividends, using share repurchases for flexibility while maintaining dividends for consistency (Grullon & Michaely, 2002). Additionally, dividends may reduce agency costs by limiting excess free cash flow that could be inefficiently invested (Jensen, 1986).

Further, while studies indicate that risk-taking is associated with reduced dividends or buybacks (e.g., Adjaoud & Ben-Amar, 2010; Caliskan & Doukas, 2015) to preserve financial flexibility, some firms may take the opposite approach, such as using share repurchases as a strategic risk tool. For firms with a high magnitude of CEO pay ratios, increasing share repurchases may serve several purposes. First, it may be a signaling mechanism to reassure investors, reducing potential criticism over high executive compensation by boosting stock prices. Second, by embracing the flexibility associated with share repurchases, firms may maintain control over payout commitments while managing financial risk. However, this approach carries tradeoffs. If firms prioritize repurchases instead of investments in profitable projects, allocating substantial capital to repurchases may compromise long-term growth. Therefore, it may be argued that firms carefully evaluate their payout policies to ensure they align with financial stability and strategic goals, minimizing the risk of over-commitment.

We test this conjecture initially using two alternative measures of share repurchases – a) the natural logarithm of the total purchase of common and preferred stocks, and b) the dollar amount of the total share repurchases from the Compustat quarterly database, scaled by the lagged value of market capitalization. The results in columns (1) and (2) of Table 3 indicate a positive association between pay ratio and share repurchase activities. In both cases, the pay ratio has a relatively small economic impact on share repurchases. To confirm the validity of the previous two measures of share repurchases, in column (3), we employ a third measure: the amount of share repurchases net of share issues. We still find a statistically significant positive effect of the CEO pay ratio on repurchases. In economic terms, columns (1) and (2) indicate that a 1% increase in the CEO payout ratio is associated with a 0.001%

TABLE 3 The effect on stock repurchases.

	Dependent variables:		
	<i>Stock repurchases_t</i>	<i>Alt. stock repurchases_t</i>	<i>Stock repurchase net of issue_t</i>
	(1)	(2)	(3)
<i>log(CEO Pay Ratio)_{t-1}</i>	0.001** (2.308)	0.001*** (3.475)	0.003** (2.513)
<i>R&D/Total Assets_{t-1}</i>	0.009 (0.578)	0.006 (0.530)	0.215*** (4.722)
<i>Capex/Total Assets_{t-1}</i>	-0.041** (-2.147)	-0.024* (-1.678)	-0.060 (-1.158)
<i>Market/Book_{t-1}</i>	-0.000*** (-4.195)	-0.000*** (-4.298)	0.001*** (4.266)
<i>Profitability_{t-1}</i>	0.044*** (5.955)	0.038*** (7.941)	0.110*** (4.444)
<i>Retained Earnings/Total Assets_{t-1}</i>	-0.000 (-0.184)	-0.000 (-0.071)	0.029*** (4.663)
<i>Log(Total Assets)_{t-1}</i>	-0.001 (-0.279)	0.002 (0.992)	0.065*** (6.506)
<i>Change in Assets_{t-1}</i>	-0.006*** (-3.470)	-0.005*** (-4.883)	0.006 (1.509)
<i>Return Volatility_{t-1}</i>	0.002 (0.143)	-0.011 (-1.443)	-0.273*** (-6.683)
<i>Cash_{t-1}</i>	0.009* (1.687)	0.012*** (2.987)	0.068*** (4.521)
<i>Sales Growth_{t-1}</i>	0.002 (1.486)	0.001 (0.639)	0.005 (1.017)
<i>Cash Flow Volatility_{t-1}</i>	0.011*** (3.938)	0.007*** (3.682)	-0.020** (-1.971)
<i>Industry FE</i>	Yes	Yes	Yes
<i>Year FE</i>	Yes	Yes	Yes
<i>Number of Observations</i>	4,548	4,730	4,203
<i>R²</i>	0.1379	0.1589	0.4293

Note: The table reports regression results on the relationship between the CEO pay ratio and stock repurchases. The dependent variable in column (1), *Stock Repurchases*, is the natural logarithm of the purchase of common and preferred stock scaled by market capitalization; in column (2), *Alt. Stock Repurchases*, is the annualized value of total shares repurchased times the end of quarterly repurchase price; and in column (3), *Stock Repurchase Net of Issue*, is the amount of share repurchases net of share issues scaled by lagged market capitalization. *Log(CEO Pay Ratio)* is the natural logarithm of a CEO's actual pay ratios as disclosed by firms. All the control variables are defined in Appendix A. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity (White, 1980) and firm clustering (Petersen, 2008). The symbols ***, **, and * indicate statistical significance based on two-sided tests at the 1%, 5%, and 10% levels. The coefficients of the intercepts are suppressed.

increase in the amount of stock repurchases. Similarly, column (3) indicates that a 1% increase in the CEO payout ratio is associated with a 0.003% increase in the amount of stock purchases net of the share issue. In sum, the results indicate that though there is a 1% excise tax on CEO pay-inflating stock repurchases, firms with a relatively high magnitude of CEO pay ratios have been increasingly buying back their stocks.¹⁰

4.4 | The role of CEO compensation delta and vega

Next, we empirically investigate whether the CEO pay ratio affects dividend policy, conditional on the level of CEO risk-averse (delta) and risk-taking (vega) compensation packages. Although Chang et al. (2023) mention that the pay ratio disclosure requirement does not reveal any new information regarding the CEO's compensation package, other studies dispute this argument (Boone et al., 2024; M. Cheng & Zheng, 2023). Since dividend payment sends positive signals to the market (Miller & Rock, 1985), firms are likely to respond to negative investors' reactions by reducing CEO compensation (M. Cheng & Zhang, 2023) or adopting generous payout policies, which we investigate in this article.

Literature examining the effects of various components of CEO compensation, particularly stock options, on different firm policies identifies that CEO delta and CEO vega impact firm-level decisions in different directions. For example, Coles et al. (2006), Core and Guay (2002), and Guay (1999) find that high vega CEO pay induces riskier policies, whereas high delta CEO pay prompts risk-averse policies (Knopf et al., 2002; Low, 2009). Complementing these previous findings, Caliskan and Doukas (2015) show that CEOs with high delta are more likely to increase dividends, while CEOs with high vega are less likely to increase dividends. If a CEO's decisions positively affect investors' perception and confidence, such decisions may impact stock prices and dividend policy. Further, since Chang et al. (2023) find that the mandate changes the sensitivity of equity compensation, we can arguably expect a corresponding change in the dividend payout policy in firms with higher CEO pay ratios. La Porta et al. (2000) identify the ratio of dividends to earnings as the most widely used measure of dividend payout. Therefore, we use this measure as our dependent variable for the rest of the article.

In columns (1) and (2) of Panel A of Table 4, we consider the combined effect of the CEO pay ratio and high delta and find that high-delta CEOs are more likely to increase the payout ratio, which is consistent with Caliskan and Doukas (2015). Surprisingly, in column (4), while high-vega CEO pay exerts a negative effect on dividend payout (*High Vega Dummy*_{*t-1*}), we find that the CEO pay ratio, conditional on high vega, is also positively associated with dividend payout ratio ($\log(\text{CEO Pay Ratio})_{t-1} * \text{High Vega Dummy}_{t-1}$). The result suggests that high-vega CEOs may alter their investment and financial policies when they have higher pay ratios. Thus, our results extend the findings of M. Cheng and Zhang (2023) by suggesting that, in addition to altering the CEO compensation mix in response to the mandate, firms may have also adjusted their dividend payouts to benefit shareholders.

To extend our understanding of the effect of the magnitude of the CEO pay ratio in the context of various compensation components, we also examine whether and how the level of equity compensation influences the relationship between the CEO pay ratio and dividend payout. Caliskan and Doukas (2015) show that CEOs with high equity compensation tend to reduce dividends. They argue that high equity compensation may reduce dividends for two reasons – a) CEOs with high equity compensation may pursue investment opportunities more aggressively since they are more focused on increasing stock price, and b) investors are less concerned about higher dividends since any wasteful investment activities by CEOs would reduce their own compensation. However, Lambert et al. (1991) and Smith and Stulz (1985) argue that high equity compensation may induce CEOs to be risk-averse to defend against losses from declining stock prices. The results in columns (1) and (2) of Panel B indicate that the effect of the CEO pay ratio on dividend payout is higher in the presence of high equity compensation. This

¹⁰<https://inequality.org/research/congress-takes-historic-step-to-tax-stock-buybacks/>.

TABLE 4 The effect of CEO risk-taking inducing compensation (delta and vega).

PANEL A: The effect of CEO delta-vega								
	Dependent variables = payout ratio _t							
	(1)	(2)	(3)	(4)				
log(CEO Pay Ratio) _{t-1}	0.009** (2.435)	0.007* (1.786)	0.010** (2.507)	0.006 (1.486)				
High Delta Dummy _{t-1}	0.013 (1.078)	-0.055 (-1.404)						
log(CEO Pay Ratio) _{t-1} * High Delta Dummy _{t-1}		0.014* (1.751)						
High Vega Dummy _{t-1}			-0.006 (-0.461)	-0.121*** (-3.002)				
log(CEO Pay Ratio) _{t-1} * High Vega Dummy _{t-1}				0.024*** (2.883)				
Controls	Yes	Yes	Yes	Yes				
FF 48-Industry FE	Yes	Yes	Yes	Yes				
Year FE	Yes	Yes	Yes	Yes				
No. of Observations	5,499	5,499	5,499	5,499				
R ²	0.1965	0.1973	0.1962	0.1986				
PANEL B: The effect of CEO inside debt, equity holding, and leverage								
	Dependent variables: payout ratio _t							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
log(CEO Pay Ratio) _{t-1}	0.009** (2.50)	0.003*10 ⁻³ (0.08)	0.007* (1.81)	0.001 (0.35)	0.006* (1.80)	0.001 (0.35)	0.007* (1.81)	0.001 (0.34)
High CEO Equity Dummy _{t-1}	0.021** (2.12)	-0.093*** (-2.72)						
log(CEO Pay Ratio) _{t-1} * High CEO Equity Dummy _{t-1}		0.025*** (3.54)						
High Inside Debt Dummy _{t-1}			0.088*** (7.34)	-0.098* (-1.80)				
log(CEO Pay Ratio) _{t-1} * High Inside Debt Dummy _{t-1}				0.038*** (3.50)				
High CEO Leverage Dummy _{t-1}					0.088*** (7.31)	-0.098* (-1.80)		

(Continues)

TABLE 4 (Continued)

PANEL B: The effect of CEO inside debt, equity holding, and leverage								
	Dependent variables: <i>payout ratio_t</i>							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>log(CEO Pay Ratio)_{t-1} * High CEO Leverage Dummy_{t-1}</i>						0.038***		
						(3.50)		
High CEO Relative Lev. Dummy _{t-1}							0.087***	-0.101**
							(7.24)	(-1.84)
<i>log(CEO Pay Ratio)_{t-1} * High CEO Relative Lev. Dummy_{t-1}</i>								0.039***
								(3.52)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5499	5499	5499	5499	5499	5499	5499	5499
R ²	0.4304	0.4333	0.4445	0.4482	0.4444	0.4481	0.4446	0.4478

Note: The table reports the regression results on the relationship between the magnitude of the CEO pay ratio and the dividend payout ratio conditional on the CEO risk aversion-inducing (delta) vs risk-seeking-inducing (vega) compensation structure. The dependent variable *Payout Ratio* is the ratio of cash dividends declared on common/ordinary shares to net income before extraordinary items. In Panel A, delta is the sensitivity of CEO equity compensation to stock price changes, and vega is the sensitivity of equity compensation to stock return volatility. In columns (1) and (2), *High Delta Dummy* is a dummy variable that takes a value of 1 if a CEO's compensation delta is above the median and 0 otherwise, and in columns (3) and (4), *High Vega Dummy* is a dummy variable that takes a value of 1 if a CEO's compensation vega is above median and 0 otherwise. In Panel B, in columns (1) and (2), *High Inside Debt Dummy* is a dummy variable that takes a value of 1 if a CEO inside debt holding is above median and 0 otherwise; in columns (3) and (4), *High CEO Leverage Dummy* is a dummy variable that takes a value of 1 if a CEO inside debt to equity holding is above median and 0 otherwise; in columns (5) and (6), *High Relative Lev. Dummy* is a dummy variable that takes a value of 1 if the ratio of a CEO's leverage to the firm's debt-equity holdings is higher than the median value and 0 otherwise. *Log(CEO Pay Ratio)* is the natural logarithm of a CEO's actual pay ratios as disclosed by firms. All the control variables are defined in Appendix A. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity (White, 1980) and firm clustering (Petersen, 2008). The symbols ***, **, and * indicate statistical significance based on two-sided tests at the 1%, 5%, and 10% levels. The coefficients of the intercepts are suppressed.

result suggests that high equity compensation may have increased the risk aversion motivation of CEOs with relatively high pay ratios. It also suggests that CEOs with a high magnitude of pay ratios are more concerned about shareholders' perceived inequality to avoid potential stock price decreases and the value loss of CEOs' reputational (human) capital in a competitive executive labor market.

Inside debt is a type of compensation that ties a CEO's wealth to the market value of debt, which makes the CEO risk averse as they are likely to face significant loss of wealth in the event of bankruptcy (Edmans & Liu, 2011; Jensen & Meckling, 1976; Sundaram & Yermack, 2007). Caliskan and Doukas (2015) find that inside debt may lead to higher dividend payout, as CEOs with high inside debt are interested in receiving cash payouts rather than reinvesting the profits back into the firm. Additionally, the inside debt component may incentivize CEOs to focus on long-term growth rather than short-term gains, resulting in increased dividends over time. In line with the scientific

evidence provided by Tricomi et al. (2010) on the existence of inequality-averse social preferences in the human brain, it can be safely argued that the magnitude of CEO pay ratios may have augmented the positive relationship between inside debt and payout ratio, as CEOs may want to project themselves as long-term oriented. We test this conjecture and find, as shown in columns (3) and (4) of Panel B, that the positive association between the CEO pay ratio and dividend payout ratio is stronger in the presence of high inside debt.

Next, we consider the effect of CEO leverage (i.e., CEO inside debt to CEO equity holdings) on the payout policy following Cassell et al. (2012). They show that CEO leverage is negatively associated with risky investment policies, such as Research and Development (R&D), and reduces the volatility of future stock returns. Similarly, Caliskan and Doukas (2015) have established that high CEO leverage increases dividend payout, which is considered a policy to preserve CEOs' undiversified wealth and simultaneously satisfy shareholders. As reported in columns (5) and (6) of Panel B, we find that the effect of the CEO pay ratio on dividends is higher in the presence of high CEO leverage. We thus provide additional evidence related to the positive effect of debt-like compensation on payouts.

In the last two columns of Panel B, following Sundaram and Yermack (2007), we create a CEO relative leverage dummy that takes a value of 1 if the CEO's debt-equity ratio is greater than the firm's debt-equity ratio and 0 otherwise. According to Jensen and Meckling (1976), this measure more accurately reveals the effect of CEOs' inside debt on firm investment and financial policies. Confirming our results earlier in this section, we show a strong positive association between the magnitude of the CEO pay ratio and dividend payout in firms with high CEO relative leverage (i.e., high inside debt (risk-averse)).

In sum, our evidence reveals that the magnitude of the CEO pay ratio, which is made available to the investors by the need for greater corporate transparency in response to changing social norms against managerial opportunistic behavior (Hoi et al., 2019), may have a beneficial effect on the wealth of investors.

4.5 | The effect of generalist CEOs

Murphy and Zbojnik (2004) argue that general skills are more important than firm-specific skills when performing the duties of CEOs. Custódio et al. (2013) document that generalist CEOs possess diverse skills, experience, and adaptability, making them more capable of handling complex and dynamic business environments and securing higher compensation. Indeed, firms value these capabilities because such attributes enhance corporate adaptability, foster innovation, and improve responsiveness to market disruptions. Custódio et al. (2013) find that generalist CEOs drive innovations because of their acquired outside knowledge that can be applied if innovation projects are likely to fail. Thus, it may be argued that generalist CEOs are likely to bring an interdisciplinary perspective to decision-making, enabling them to implement cross-functional strategies that specialists may struggle to conceptualize.

Custódio et al. (2013) argue that a critical reason for the higher pay of generalist CEOs is their elevated "outside option" value in the executive labor market. Due to their broad skill sets, generalists are more likely to be recruited by competing firms, which may increase their bargaining power and, consequently, their compensation. Additionally, boards are more likely to perceive generalists as being better equipped to handle firm-wide risks, making them the preferred choice for leadership roles in companies facing high levels of uncertainty or industry disruption.

In view of the qualities of generalist CEOs, we examine whether the relationship between the CEO pay ratio and dividend payout is influenced by generalist CEOs. We accomplish this in two steps. First, we examine whether high general skills are associated with the disclosed magnitude of the pay ratio. The results in Panel A of Table 5 indicate that the generalist CEOs are likely to have a positive association with the magnitude of the pay ratio, suggesting that these CEOs are paid relatively higher. In Panel B, we find that the high general skills CEOs are more likely to pay high dividends when they are associated with high magnitudes of pay ratios. In sum, the results suggest that high general ability CEOs are likely to maintain shareholder trust because of their broad expertise.

TABLE 5 CEO general ability and pay ratio.

PANEL A: CEO general ability and pay ratio		
	Dependent variables: <i>log(CEO Pay ratio)_t</i>	
	(1)	
<i>High GAI Dummy_{t-1}</i>	0.104*	
	(1.885)	
<i>R&D/Total Assets_{t-1}</i>	-0.982*	
	(-1.939)	
<i>Capex/Total Assets_{t-1}</i>	-1.812***	
	(-3.750)	
<i>Market/Book_{t-1}</i>	0.006**	
	(2.171)	
<i>Profitability_{t-1}</i>	-0.014	
	(-0.068)	
<i>Retained Earnings/Total Assets_{t-1}</i>	-0.017	
	(-0.592)	
<i>Log(Total Assets)_{t-1}</i>	0.636***	
	(8.739)	
<i>Change in Assets_{t-1}</i>	-0.013	
	(-0.317)	
<i>Return Volatility_{t-1}</i>	-0.834***	
	(-2.643)	
<i>Cash_{t-1}</i>	-0.952***	
	(-4.720)	
<i>Sales Growth_{t-1}</i>	-0.042	
	(-1.253)	
<i>Cash Flow Volatility_{t-1}</i>	0.347***	
	(4.557)	
<i>Industry FE</i>	Yes	
<i>Year FE</i>	Yes	
<i>Number of Observations</i>	5398	
<i>R²</i>	0.3735	
PANEL B: General ability and dividend payout ratio		
	Dependent variables:	
	<i>Payout ratio_t</i>	
	(1)	(2)
<i>log(CEO Pay Ratio)_{t-1}</i>	0.010**	0.006

TABLE 5 (Continued)

PANEL B: General ability and dividend payout ratio		
	Dependent variables:	
	<i>Payout ratio_t</i>	
	(1)	(2)
	(2.522)	(1.420)
High GAI Dummy _{t-1}	-0.005	-0.078*
	(-0.463)	(-1.753)
<i>log(CEO Pay Ratio)_{t-1}</i> *High GAI Dummy _{t-1}		0.016*
		(1.679)
R&D/Total Assets _{t-1}	-0.069	-0.075
	(-0.876)	(-0.955)
Capex/Total Assets _{t-1}	-0.257**	-0.258**
	(-2.353)	(-2.369)
Market/Book _{t-1}	0.001	0.001
	(1.314)	(1.244)
Profitability _{t-1}	0.166***	0.166***
	(4.929)	(4.918)
Retained Earnings/Total Assets _{t-1}	0.004	0.004
	(0.646)	(0.737)
Log(Total Assets) _{t-1}	-0.014	-0.013
	(-0.917)	(-0.886)
Change in Assets _{t-1}	-0.020**	-0.020**
	(-2.537)	(-2.536)
Return Volatility _{t-1}	-0.780***	-0.777***
	(-12.487)	(-12.474)
Cash _{t-1}	-0.032	-0.031
	(-1.028)	(-1.012)
Sales Growth _{t-1}	-0.015**	-0.015**
	(-2.279)	(-2.397)
Cash Flow Volatility _{t-1}	0.034*	0.035*
	(1.776)	(1.799)
Industry FE	Yes	Yes
Year FE	Yes	Yes

(Continues)

TABLE 5 (Continued)

PANEL B: General ability and dividend payout ratio		
	Dependent variables:	
	<i>Payout ratio_t</i>	
	(1)	(2)
Number of Observations	5499	5499
R ²	0.4295	0.4303

Note: The table presents the regression results on the relationship between high CEO general ability and the CEO Pay ratio in Panel A, and the combined effect of the CEO pay ratio and general ability on the dividend payout ratio in Panel B. *High General Ability Dummy* is a dummy variable that takes a value of 1 if the general ability of a CEO, following Custódio et al. (2013), is greater than the median value for all the CEOs and 0 otherwise. In Panel A, *Log(CEO Pay Ratio)* is the natural logarithm of a CEO's actual pay ratios as disclosed by firms. In Panel B, *Payout Ratio* is the ratio of cash dividends declared on common/ordinary shares to net income before extraordinary items. All the control variables are defined in Appendix A. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity (White, 1980) and firm clustering (Petersen, 2008). The symbols ***, **, and * indicate statistical significance based on two-sided tests at the 1%, 5%, and 10% levels. The coefficients of the intercepts are suppressed.

4.6 | The effect of the disclosed pay ratio on firm cash holdings

To complement our findings on the relationship between the magnitude of the CEO pay ratio and dividend payout, here we examine the probable effect of the CEO pay ratio on corporate cash holdings. The managerial entrenchment view suggests that if a CEO's pay ratio is perceived to be very high compared to a median employee, it may negatively impact on the image of the firm, drawing negative public perception and potentially harming the firm's reputation and performance. In response, the firm may seek to mitigate this risk by reducing cash holdings and reallocating resources towards initiatives that improve employee welfare or address income inequality concerns. This is important since investors are likely to scrutinize the CEO compensation practices more closely when the pay ratios are publicly available. Pan et al. (2022) show that inequality-averse investors tend to avoid firms with higher CEO pay ratios. A relatively high magnitude of CEO pay could increase investors' concerns about corporate governance and potential managerial self-serving behavior. Further, a relatively high CEO pay ratio can negatively impact employees' morale, as identified by Boulouta and Pitelis (2014). We argue that all these concerns may induce firms not only to increase the amount of dividend payout but also to deploy cash towards employee benefits and development programs, leading to a decreased level of cash holdings.

We test this conjecture by augmenting the cash holdings framework of Opler et al. (1999). Specifically, we use the following model to examine the effect of the CEO pay ratio on the level of cash holdings:

$$\begin{aligned}
 \text{Level of cash holdings}_t = & \beta_0 \text{Log(Pay Ratio)}_{t-1} + \beta_1 \text{Market-to-book ratio}_{t-1} + \beta_2 \text{Real size}_{t-1} \\
 & + \beta_3 \text{Cash flow/assets}_{t-1} + \beta_4 \text{Networking capital/assets}_{t-1} \\
 & + \beta_5 \text{Capital expenditures/assets}_{t-1} + \beta_6 \text{Firm Leverage}_{t-1} \\
 & + \beta_7 \text{R\&D/sale}_{t-1} + \beta_8 \text{Dividend dummy}_{t-1} + \beta_9 \text{Industry Sigma}_{t-1} + \varepsilon_t
 \end{aligned} \tag{2}$$

Appendix A provides a detailed definition of all the variables related to cash holdings. The regression results in Table 6 indicate that the level of cash holdings is negatively associated with the CEO pay ratio. This may also suggest that with the availability of pay ratios, investor monitoring increases in firms with higher pay ratios, thus reducing the possibility of managerial self-serving behavior. Collectively, our results are consistent with the notion that a better disclosure system to improve transparency mitigates the level of cash holdings by heightening market monitoring.

TABLE 6 The effect on the level of firm cash holdings.

	<i>Dependent variables: level of cash holdings_t</i>	
	<i>Without sigma</i>	<i>With sigma</i>
	(1)	(2)
$\log(\text{CEO Pay Ratio})_{t-1}$	-0.010*** (-4.04)	-0.011*** (-3.90)
$\text{Market-to-book ratio}_{t-1}$	0.021*** (11.87)	0.021*** (11.84)
Real size_{t-1}	-0.016*** (-7.24)	-0.017*** (-7.04)
$\text{Cash flow/assets}_{t-1}$	-0.262*** (-7.86)	-0.260*** (-7.82)
$\text{Net working capital/assets}_{t-1}$	-0.078*** (-6.89)	-0.079*** (-6.97)
$\text{Capital expenditures/assets}_{t-1}$	-0.375*** (-7.35)	-0.377*** (-7.40)
$\text{Firm Leverage}_{t-1}$	-0.111*** (-7.17)	-0.110*** (-7.11)
$\text{R\&D/sale}_{t-1}$	0.004*** (5.27)	0.004*** (5.28)
$\text{Dividend dummy}_{t-1}$	-0.029*** (-5.17)	-0.029*** (-5.30)
$\text{Industry Sigma}_{t-1}$		0.003*10 ⁻³ (1.38)
<i>Industry FE</i>	Yes	Yes
<i>Year FE</i>	Yes	Yes
<i>No. of Observations</i>	8359	8359
R^2	0.7681	0.7683

Note: The table shows the regression results on the effect of the magnitude of the CEO pay ratio on the level of cash holdings following Opler et al. (1999). The dependent variable is the level of cash holdings, calculated as cash divided by assets minus cash holdings. $\log(\text{CEO Pay Ratio})$ is the natural logarithm of a CEO's actual pay ratios as disclosed by firms; $\text{Market-to-book ratio}_t$ is measured as the book value of assets, less the book value of equity, plus the market value of equity, scaled by total assets; Real size_t is the natural logarithm of total assets; $\text{Net working capital/assets}_t$ denotes net working capital without cash scaled by total assets; $\text{Capital expenditures/assets}$ is capital expenditure scaled by total assets; $\text{R\&D expenditure scaled by sales}$; Leverage_t is the total debt scaled by the book value of total assets; Dividend dummy_t is a dummy variable that takes a value of 1 in years in which a firm pays dividends, and 0 otherwise; and finally, Industry Sigma_t denotes the volatility of an industry's cash flow for a 20-year period. All the control variables are defined in Appendix A. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity (White, 1980) and firm clustering (Petersen, 2008). The symbols ***, **, and * indicate the statistical significance based on two-sided tests at the 1%, 5%, and 10% levels. The coefficients of the intercepts are suppressed.

4.7 | The effect of CEO pay ratio on investment efficiency

In the previous sections, we identify a positive impact of the magnitude of the CEO pay ratio on dividends and a negative effect on the level of cash holdings. In this context, a related and important question may arise on the effect of the CEO pay ratio on the efficiency of subsequent investment activities. If a CEO has a relatively high pay ratio, it is crucial for the shareholders to assess whether a high compensation package induces investment decisions that benefit the shareholders. Therefore, to complement our findings on the relationship between the CEO pay ratio and dividend policy, we examine the possible association between the CEO pay ratio and the efficiency of firm-level capital and non-capital investments. If the CEO pay ratio is negatively associated with managerial entrenchment, we may expect these firms to experience improvements in investment efficiency. Even if there is no managerial entrenchment, since high-ability managers receive higher compensation (Bertrand & Schoar, 2003) and high-ability managers improve investment efficiency (Gan, 2019), we may expect a positive relationship between the CEO pay ratio and investment efficiency. To test this conjecture, we measure inefficiency as the deviation from the expected level of investment based on the following regression motivated by previous literature (Biddle et al., 2009; Chowdhury et al., 2021). First, we determine the residual from equation (3) that proxies for the firm-specific deviation from the expected level of investment. A positive (negative) abnormal investment suggests over-investment (under-investment):

$$INVEST_{i,t} = \alpha_0 + TobinQ_{i,t-1} + \alpha_2 Sales\ Growth_{i,t} + \varepsilon_{i,t} \quad (3)$$

Here $INVEST_{i,t}$ is the sum of capital, R&D, and acquisition expenditure minus the sale of property, plant, and equipment for firm i in year t . After obtaining abnormal investment estimates for each firm-year, we estimate the following regression model to examine the effect of CEO Pay Ratio on investment inefficiency by augmenting Biddle et al. (2009) and Chowdhury et al. (2021):

$$\begin{aligned} Investment_{t+1} = & \beta_0 + \beta_1 \log(Pay\ Ratio)_t + \beta_2 Residual_t + \beta_3 \log(CEO\ Pay\ Ratio)_t \times Residual_t \\ & + \beta_4 Inst.Holding_t + \beta_5 \sigma(Investment)_t + \beta_6 \sigma(CFO)_t + \beta_7 \sigma(SALES)_{t-1} + \beta_8 LogAssets_t \\ & + \beta_9 Market - to - book_t + \beta_{10} Z - score_t + \beta_{11} Tangibility_t + \beta_{12} CFOSale_t + \beta_{13} Dividend_t \\ & + \beta_{14} OperatingCycle_t + \beta_{15} Losses_t + \beta_{16} Age_t + \varepsilon_t \end{aligned} \quad (4)$$

Here, the coefficient of $Residual$ (β_2) captures the effect of abnormal investment (i.e., over-investment or under-investment) in the current period on future investments. β_3 , (i.e., the coefficient of the interaction term, $\log(Pay\ Ratio) \times Residual$) captures how the abnormal investments in the current period affect future changes in investments due to the disclosed magnitude of the CEO pay ratio. A negative (positive) β_3 indicates that the effect of over-investment (under-investment) is a decrease (increase) in investment as a result of the disclosed magnitude of the CEO pay ratio (i.e., a negative β_3 indicates improved investment efficiency, whereas a positive β_3 indicates deteriorating investment efficiency).

Eisendorfer et al. (2013) find an association between CEO compensation and investment efficiency. They argue that since the CEO compensation package often includes a mix of debt-like (e.g., pensions and deferred compensation) and equity-like (e.g., stock options) components, and these elements affect managerial incentives differently, they are likely to impact investment efficiency. Given that firms adjust the mix of compensation components after the pay ratio disclosure mandate (Chang et al., 2023), we argue that the magnitude of the CEO pay ratio may introduce greater transparency into compensation structures. This may also facilitate investors gaining insights into how managerial incentives are structured and how these incentives may influence the firm's investment decisions. For example, if the CEO pay ratio relies more on equity-like compensation, investors might assume a potential bias toward short-termism in investment strategies. Thus, the size of the CEO pay ratio may induce investors to exert pressure to create a more balanced compensation structure, promoting value-driven investment decisions.

On the other hand, such transparency can also deter excessive risk-taking or conservative investment decisions, resulting in underinvestment. When CEOs know that their compensations are likely to be publicly scrutinized (Core et al., 2008), they may avoid strategies that appear self-serving or misaligned with firm values. Instead, they may pursue projects that can withstand public and stakeholder evaluation, which tend to be closer to the optimal investment policy. The negative and significant coefficient of the interaction term in column (1) of Table 7 indicates that the magnitude of the CEO pay ratio may reduce managerial entrenchment, thus reducing their incentive to deviate from the optimal investment level. When we decompose the total investments into different components in columns (2) through (5), we identify similar and statistically significant trends for different types of investments (except for acquisition activities in column (4)). Thus, the results in this section indicate that CEO pay ratios may offer a mechanism for improving investment efficiency by promoting transparency, aligning with shareholders' interests, and ensuring managerial accountability. In sum, the magnitude of the CEO pay ratio may induce firms to create value-maximizing investment policies while mitigating risks associated with misaligned managerial incentives.

4.8 | The effect on shareholders' wealth

To examine the effect of the CEO pay ratio on shareholders' wealth, a direct approach might be to examine whether there is an association between $\text{Log}(\text{CEO Pay Ratio})$ and the equally weighted excess stock returns, following Faulkender and Wang (2006). Accordingly, we calculate equally weighted excess stock returns as the annual excess return relative to the equally weighted return of the benchmark portfolio over the 12-month period of the fiscal year. Following Faulkender and Wang (2006), we also measure the benchmark portfolio return by the equally weighted average return of Fama and French (1993). The results in Table 8 indicate that shareholders' wealth is also positively affected in response to the disclosed magnitude of the CEO pay ratio. Thus, the results in this section support the notion of the positive association between the CEO pay ratio and shareholders' wealth.

4.9 | Endogeneity

In this section, we address the natural concern of endogeneity stemming from omitted variables, which may influence the estimated coefficient of $\log(\text{Pay Ratio})_{t-1}$. There may be factors that affect both the CEO pay ratio and dividend payout. Therefore, it is important to examine whether our results are robust after correcting the possible endogeneity of the CEO pay ratio. We use two different instruments to alleviate the concern of endogeneity.

Our first instrument is based on Attig et al. (2021), who use the degree of political polarization in the U.S. Senate, as quantified by Gulen and Ion (2016), as an instrument for the level of economic policy uncertainty. Economic policy uncertainty is likely to influence workers' compensation, which may influence the CEO pay ratio. Therefore, we use the degree of political polarization as an instrument for the CEO Pay Ratio. Specifically, we use the first dimension of the dynamic weighted (DW) Nominate score of McCarty et al. (1997), which represents the extent of the influence of government in the economy. As presented in Panel A of Table 9, the results of the first stage regression indicate an economically significant positive influence of *DW Nominate* on the CEO pay ratio. In the second stage, in which we regress the *Payout Ratio* on the *Fitted* value from the first stage, we still find a positive and significant effect of *Fitted* on the *Payout Ratio*. The chi-square value of 800.265 suggests that the model is well-defined at a 1% level.

To confirm our findings using the *DW Nominate*, we construct a second instrument in the spirit of Chatjuthamard and Jiraporn (2023), Jiraporn et al. (2014), and Pirinsky and Wang (2006), who indicate that a firm's headquarters locations are exogenous to its financial policies as the headquarters locations are determined in advance. Based on this argument, we posit that ZIP codes are highly unlikely to impact dividend policy. Therefore, we use the average value the CEOs' pay ratios (excluding the focal firm) within a specific three-ZIP code as an

TABLE 7 The effect on investment efficiency.

	<i>Dependent variables:</i>				
	<i>Investment_{t+1}</i>	<i>Capex_{t+1}</i>	<i>Non-capex_{t+1}</i>	<i>Acquisition_{t+1}</i>	<i>R&D_{t+1}</i>
	(1)	(2)	(3)	(4)	(5)
<i>log(CEO Pay Ratio)_t</i>	-0.093*** (-2.63)	-0.017 (-1.62)	-0.072** (-2.10)	0.031** (2.28)	-0.947*** (-3.25)
<i>Residual_t</i>	0.434*** (5.55)	0.082*** (3.15)	0.335*** (4.27)	-0.054** (-2.09)	3.913*** (5.32)
<i>log(CEO Pay Ratio)_t * Residual_t</i>	-0.059*** (-3.29)	-0.011** (-2.01)	-0.045** (-2.50)	0.006 (1.13)	-0.503*** (-2.97)
<i>Institutional Holding_t</i>	0.265 (0.89)	0.020 (0.28)	0.269 (0.94)	0.382*** (3.84)	-2.791 (-1.21)
<i>σ(CFO)_t</i>	0.257*10 ^{-3**} (2.5)	-0.115*10 ^{-3**} (-2.33)	0.396*10 ^{-3***} (3.86)	0.036*10 ⁻³ (0.53)	0.003*** (4.05)
<i>σ(Sales)_t</i>	-0.018*10 ⁻³ (-0.71)	0.016*10 ^{-3**} (2.03)	-0.039*10 ^{-3*} (-1.66)	-0.024*10 ^{-3*} (-1.72)	-0.206*10 ⁻³ (-1.24)
<i>σ(Investment)_t</i>	0.225*** (3.87)	-0.015 (-1.66)	0.240*** (4.24)	0.058*** (2.63)	1.786*** (3.93)
<i>LogAssets_t</i>	-0.261*** (-5.96)	-0.032** (-2.48)	-0.223*** (-5.05)	-0.049** (-2.17)	-1.387*** (-4.64)
<i>Mkt-to-Book_t</i>	0.172 (0.58)	-0.012 (-0.26)	0.175 (0.62)	-0.119* (-1.83)	3.533 (1.42)
<i>Z-score_t</i>	0.009*10 ^{-3***} (3.25)	0.004*10 ^{-3***} (3.11)	0.005*10 ^{-3*} (1.82)	0.002*10 ⁻³ (1.09)	0.036*10 ^{-3*} (1.84)
<i>Tangibility_t</i>	0.066 (0.32)	0.669*** (5.58)	-0.641*** (-3.55)	-0.236* (-1.78)	-3.239*** (-2.71)
<i>CFOsale_t</i>	-0.013** (-2.04)	0.140*10 ⁻³ (0.33)	-0.013** (-2.00)	0.001*** (3.10)	-0.144** (-2.19)
<i>Dividend_t</i>	-0.299*** (-3.59)	-0.0278617 (-1.04)	-0.270*** (-3.25)	-0.058 (-1.16)	-1.773*** (-3.68)
<i>OperatingCycle_t</i>	-0.041*10 ⁻³ (-0.25)	-0.003*10 ⁻³ (-0.09)	-0.041*10 ⁻³ (-0.25)	0.030*10 ⁻³ (0.45)	-0.001 (-0.62)
<i>Losses_t</i>	-0.187** (-2.21)	-0.163*10 ^{-3***} (-5.12)	-0.001 (-0.01)	-0.253*** (-5.30)	3.317*** (6.77)
<i>Firm Age_t</i>	0.063 (1.05)	-0.046** (-2.38)	0.122* (2.11)	0.058* (1.83)	0.378 (0.97)
<i>Industry FE</i>	Yes	Yes	Yes	Yes	Yes

TABLE 7 (Continued)

	<i>Dependent variables:</i>				
	<i>Investment_{t+1}</i>	<i>Capex_{t+1}</i>	<i>Non-capex_{t+1}</i>	<i>Acquisition_{t+1}</i>	<i>R&D_{t+1}</i>
	(1)	(2)	(3)	(4)	(5)
<i>Year FE</i>	Yes	Yes	Yes	Yes	Yes
<i>No. of Observations</i>	1870	1870	1870	1667	1870
<i>R²</i>	0.3905	0.1849	0.4066	0.177	0.6065

Note: The table presents the regression results on the effect of the CEO pay ratio on firm investment efficiency. In column (1), the dependent variable $Investment_{t+1}$ is the sum of the capital, acquisition, and R&D expenditure of firm i in year t scaled by lagged total assets. In column (2), the dependent variable $Capex_{t+1}$ is the capital expenditure at t scaled by the lagged total assets. In column (3), the dependent variable $Non-Capex_{t+1}$ is the sum of R&D and acquisition expenditure scaled by lagged total assets. In column (4), the dependent variable $Acquisition_{t+1}$ is the acquisition expenditure scaled by lagged total assets. Finally, in column (5), $R\&D_{t+1}$ is the research and development expenditure scaled by lagged total assets. $\log(CEO\ Pay\ Ratio)_t$ is the natural logarithm of a CEO's actual pay ratios as disclosed by firms. $Residual_t$ is the *Abnormal Investment* for each firm-year by estimating the following equation within each three-digit SIC industry: $Investment_{i,t} = \beta_0 + \beta_1 TobinQ_{i,t-1} + \beta_2 \Delta Sales_{i,t-1} + \varepsilon_{i,t}$ (3), where $TobinQ_{i,t-1}$ is lagged value of Tobin's Q , calculated as the sum of the market value of equity and the book value of liabilities divided by total assets, and $\Delta Sales_{i,t-1}$ is the lagged percentage change in sales. A positive *Abnormal Investment* suggests over-investment in that year vice versa. $Sales\ Growth_{t-1}$ is the lagged percentage change in sales. $Institutional\ Holdings_t$ is the institutional investor shareholding, $\sigma(CFO)_t$ is the standard deviation of CFO, $\sigma(Sales)_t$ is the standard deviation of the sales. The numerators of $\sigma(CFO)_t$ and $\sigma(Sales)_t$ are deflated by average total assets and are computed over years $t-5$ to $t-1$. $\log Assets_t$ is the natural logarithm of total assets. $Mkt-to-Book_t$ is the ratio of the market value to the book value of total assets. $Z-score_t$ is the value of the measure of distress computed following the methodology in Altman (1968). $Tangibility_t$ is the ratio of PPE to total assets. $CFOsale_t$ is the ratio of CFO to sales. $Dividend_t$ is an indicator variable that takes the value of 1 if the firm paid a dividend in the previous year and 0 otherwise. $OperatingCycle_t$ is the value of the log of receivables to sales plus inventory multiplied by 360. $Loss_t$ is an indicator variable that takes the value of 1 if, in the current year, the net income before extraordinary items is negative and 0 otherwise. $Firm\ Age_t$ is the firm age in the current year. In parentheses are t -statistics based on standard errors adjusted for heteroskedasticity (White, 1980) and firm clustering (Petersen, 2008). The symbols ***, **, and * indicate statistical significance based on two-sided tests at the 1%, 5%, and 10% levels. The coefficients of the intercepts are suppressed.

instrument. In Panel B, in the first stage, we regress the lagged average value the CEOs' pay ratios, excluding the focal firms (i.e., $\log(ZIP\ Code-based\ CEO\ Pay\ Ratio)_{t-1}$ as an instrument, and regress $\log(CEO\ Pay\ Ratio)_{t-1}$ on the instrument along with other control variables). Then, in the second stage, we use the fitted value of $\log(CEO\ Pay\ Ratio)_{t-1}$ from the first stage. The results show that the coefficient estimate of the $Fitted_{t-1}$ is positive and significant, thus alleviating the concern of endogeneity in our analysis. To determine the validity of the instrument, we also conduct a joint test of the excluded instrument (i.e., to confirm that the instrument is uncorrelated with the error term and correctly excluded from the estimated equation). The high chi-square value (853.195) suggests that the model is well identified at the 1% level.^{11,12}

¹¹We acknowledge that measurement error could be a concern when examining the effect of the CEO pay ratio on dividend payout. As a reported metric, the CEO pay ratio might suffer from inaccuracies due to variations in how firms calculate median employee pay. Such errors could bias the observed relationship, potentially attenuating the estimated effect of the CEO pay ratio on dividend payouts. Additionally, dividend payout data might also be subject to misclassification or reporting errors, particularly if firms use discretionary policies to manage their payout ratios (Chay & Suh, 2009).

¹²A key limitation of our study is the sensitivity of our results to the choice of methodology. While our primary analysis finds a positive effect of the CEO pay ratio on dividend payout, this relationship becomes statistically insignificant when using propensity score matching (PSM). Although PSM helps mitigate selection bias by matching firms with similar observable characteristics, it may account for the unobservable factors that may drive the relationship. Furthermore, differences in firm characteristics that persist even after matching could still contribute to variations in dividend payout decisions. PSM may also be problematic because it discards valuable information and can paradoxically increase imbalance, model dependence, and bias. King and Nielsen (2019) argue that while PSM is intended to approximate a completely randomized experiment, it reduces observations beyond what is necessary, worsening the very issues it seeks to address. Therefore, while PSM provides valuable robustness checks, the findings should be interpreted with caution, recognizing that the relationship between the CEO pay ratio and dividend payout may be context-dependent and influenced by factors beyond those observable characteristics in our dataset.

TABLE 8 The effect on shareholders' wealth.

	Dependent variables: <i>ExReturn_t</i> (1)
<i>Log(CEO Pay Ratio)_{t-1}</i>	0.003** (2.166)
<i>R&D/Total Assets_{t-1}</i>	0.130** (2.379)
<i>Capex/Total Assets_{t-1}</i>	0.009 (0.177)
<i>Market/Book_{t-1}</i>	-0.001*** (-3.395)
<i>Profitability_{t-1}</i>	0.013 (0.398)
<i>Retained Earnings/Total Assets_{t-1}</i>	-0.010*10 ⁻³ (-0.041)
<i>Log(Total Assets)_{t-1}</i>	0.004 (0.604)
<i>Change in Assets_{t-1}</i>	-0.012* (-1.808)
<i>Return Volatility_{t-1}</i>	-0.112** (-2.018)
<i>Cash_{t-1}</i>	0.017 (0.886)
<i>Sales Growth_{t-1}</i>	0.004 (0.402)
<i>Cash Flow Volatility_{t-1}</i>	-0.002 (-0.326)
<i>Industry FE</i>	Yes
<i>Year FE</i>	Yes
<i>Number of Observations</i>	3888
<i>R²</i>	0.0507

Note: The table presents the regression results on the relationship between the magnitude of the CEO pay ratio and the equally weighted annual excess stock returns. The dependent variable, *ExReturn_t*, is defined as the stock return over the 12-month period, which ends three months after the fiscal year-end, minus the benchmark portfolio return during the same period. Following Faulkender and Wang (2006), the benchmark portfolio return is measured by the equally weighted average return of Fama and French (1993) 25 size and book-to-market portfolios. *Log(CEO Pay Ratio)* is the natural logarithm of a CEO's actual pay ratios as disclosed by firms. All the control variables are defined in Appendix A. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity (White, 1980) and firm clustering (Petersen, 2008). The symbols ***, **, and * indicate statistical significance based on two-sided tests at the 1%, 5%, and 10% levels. The coefficients of the intercepts are suppressed.

TABLE 9 Endogeneity.

PANEL A: DW Nominate		
	IV Regressions	
	DV: $\text{Log}(\text{CEO pay ratio})_t$	DV: Payout ratio_t
	(1)	(2)
DW Nominate_{t-1}	0.091** (2.073)	
Fitted_{t-1}		0.389*** (3.086)
$\text{R\&D/Total Assets}_{t-1}$	-1.012** (-2.157)	0.268* (1.704)
$\text{Capex/Total Assets}_{t-1}$	-2.231*** (-4.538)	0.620** (2.000)
Market/Book_{t-1}	0.007** (2.287)	-0.002 (-1.540)
$\text{Profitability}_{t-1}$	0.083 (0.401)	0.156*** (3.970)
$\text{Retained Earnings/Total Assets}_{t-1}$	-0.009 (-0.293)	0.002 (0.286)
$\text{Log(Total Assets)}_{t-1}$	0.604*** (7.402)	-0.251*** (-3.249)
$\text{Change in Assets}_{t-1}$	0.028 (0.595)	-0.040*** (-3.734)
$\text{Return Volatility}_{t-1}$	-0.558* (-1.687)	-0.605*** (-6.434)
Cash_{t-1}	-0.867*** (-5.066)	0.284** (2.396)
$\text{Sales Growth}_{t-1}$	-0.057* (-1.648)	0.003 (0.223)
$\text{Cash Flow Volatility}_{t-1}$	0.469*** (5.225)	-0.134** (-2.022)
Industry FE	Yes	Yes
Year FE	Yes	Yes
Number of Observations	4,138	4,138
R2	0.3995	0.2061

(Continues)

TABLE 9 (Continued)

PANEL A: DW Nominate		
	IV Regressions	
	DV: $\text{Log}(\text{CEO pay ratio})_t$	DV: Payout ratio_t
	(1)	(2)
Joint test of excluded instruments	F(1, 4136) = 799.21 Prob > F = 0.00	
Sargan–Hansen Test statistics	274.745	
Kleibergen–Paap rk LM test	800.265***	
Kleibergen–Paap rk Wald F statistic	180.273	
PANEL B: ZIP Code-based CEO pay ratio		
	IV Regression	
	DV: $\text{Log}(\text{CEO Pay ratio})_t$	DV: Payout ratio_t
	(1)	(2)
$\text{log}(\text{ZIP Code-based CEO Pay Ratio})_{t-1}$	0.401*** (7.227)	
Fitted_{t-1}		0.044** (2.110)
$\text{R\&D/Total Assets}_{t-1}$	-0.768* (-1.705)	-0.087 (-0.880)
$\text{Capex/Total Assets}_{t-1}$	-1.785*** (-3.858)	-0.153 (-1.193)
Market/Book_{t-1}	0.007** (2.151)	0.001 (1.045)
$\text{Profitability}_{t-1}$	0.119 (0.619)	0.184*** (4.792)
$\text{Retained Earnings/Total Assets}_{t-1}$	-0.004 (-0.128)	-0.001 (-0.158)
$\text{Log}(\text{Total Assets})_{t-1}$	0.570*** (7.682)	-0.041** (-1.967)
$\text{Change in Assets}_{t-1}$	0.023 (0.507)	-0.032*** (-3.116)
$\text{Return Volatility}_{t-1}$	-0.423 (-1.336)	-0.801*** (-11.207)
Cash_{t-1}	-0.583*** (-3.563)	-0.019 (-0.482)

TABLE 9 (Continued)

PANEL B: ZIP Code-based CEO pay ratio		
	IV Regression DV: $\text{Log}(\text{CEO Pay ratio})_t$	DV: Payout ratio_t
	(1)	(2)
$\text{Sales Growth}_{t-1}$	-0.026 (-0.699)	-0.017* (-1.903)
$\text{Cash Flow Volatility}_{t-1}$	0.386*** (4.647)	0.026 (1.011)
Industry FE	Yes	Yes
Year FE	Yes	Yes
Number of Observations	4130	4130
R^2	0.4448	0.2060
Joint test of excluded instruments	F(1, 4128) = 268.86 Prob >F = 0.00	
Sargan-Hansen Test statistics	280.506	
Kleibergen-Paap rk LM test	853.195***	
Kleibergen-Paap rk Wald F statistic	199.086	

Note: This table presents the results from an instrumental variable regression of the payout ratio on the magnitude of the CEO pay ratio. The dependent variable is the *Payout Ratio*_{*t*}, defined as the ratio of cash dividends to net income before extraordinary items. In Panel A, the instrumental variable is the lagged value of *DW Nominate*, and in Panel B, the instrumental variable is the lagged value of *ZIP Code-based CEO Pay Ratio*. $\text{Log}(\text{CEO Pay Ratio})$ is the natural logarithm of a CEO's actual pay ratios as disclosed by firms. All the control variables are defined in Appendix A. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity (White 1980) and firm clustering (Petersen, 2008). The symbols ***, **, and * indicate statistical significance based on two-sided tests at the 1%, 5%, and 10% levels. The coefficients of the intercepts are suppressed.

4.10 | The effect of firm age

In the final section of our article, we examine the potential effect of firm age on the baseline relationship between CEO pay ratio and dividend payout. Firm age plays a crucial role in determining dividend payout policies. Older firms typically have more stable earnings, accumulated retained profits, fewer growth opportunities, and consequently, less capital requirements, allowing them to distribute higher dividends (Grullon and Michaely, 2002). Further, in older firms, if the presence of a higher magnitude of the CEO pay ratio raises concerns about inequality, the boards may use dividends as a tool to appease shareholders and signal strong governance. Additionally, older firms may be sensitive to reputational concerns and stakeholder expectations. The coefficient of the interaction term $(\text{log}(\text{CEO Pay Ratio})_{t-1} * \text{Old Firms}_{t-1})$ in Table 10 indicates that in older firms, the effect of the CEO pay ratio on dividend payout is more pronounced compared to the younger firms.

TABLE 10 The effect of firm age.

	Dependent variables: <i>Payout ratio_t</i> (1)
$\log(\text{CEO Pay Ratio})_{t-1}$	0.003 (0.843)
Old Firms_{t-1}	-0.023 (-0.626)
$\log(\text{CEO Pay Ratio})_{t-1} * \text{Old Firms}_{t-1}$	0.022*** (2.809)
$\text{R\&D/Total Assets}_{t-1}$	-0.118 (-1.559)
$\text{Capex/Total Assets}_{t-1}$	-0.213* (-1.959)
Market/Book_{t-1}	0.001 (1.583)
$\text{Profitability}_{t-1}$	0.143*** (4.437)
$\text{Retained Earnings/Total Assets}_{t-1}$	0.001 (0.228)
$\log(\text{Total Assets})_{t-1}$	-0.014 (-0.967)
$\text{Change in Assets}_{t-1}$	-0.017** (-2.195)
$\text{Return Volatility}_{t-1}$	-0.710*** (-11.743)
Cash_{t-1}	-0.009 (-0.314)
$\text{Sales Growth}_{t-1}$	-0.012* (-1.900)
$\text{Cash Flow Volatility}_{t-1}$	0.034* (1.831)
Industry FE	Yes
Year FE	Yes

TABLE 10 (Continued)

	Dependent variables: <i>Payout ratio_t</i> (1)
Number of Observations	5499
R ²	0.4451

Note: The table reports the regression results on the relationship between the magnitude of the CEO pay ratio and the dividend payout ratio conditional on firm age. The dependent variable *Payout Ratio* is the ratio of cash dividends declared on common/ordinary shares to net income before extraordinary items. *Old Firm* is a dummy variable that takes a value of 1 if a firm's age is higher than the median age of all the firms in our sample and 0 otherwise. *Log(CEO Pay Ratio)* is the natural logarithm of a CEO's actual pay ratios as disclosed by firms. All the control variables are defined in Appendix A. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity (White, 1980) and firm clustering (Petersen, 2008). The symbols ***, **, and * indicate statistical significance based on two-sided tests at the 1%, 5%, and 10% levels. The coefficients of the intercepts are suppressed.

5 | CONCLUSION

We examine whether the CEO-employee pay ratio, as required to be disclosed by the SEC mandate, affects the dividend payout policy. We find a positive relation between the CEO pay ratio and dividend payout. Our results remain robust to endogeneity concerns. Extending the existing literature on the effect of the sensitivity of CEO compensation structure on dividend policy, our results indicate that CEOs with both risk-averse (high delta) and risk-inducing (high vega) compensation structures are likely to increase dividends with the disclosed magnitude of CEO pay ratio. The results related to risk-inducing (high vega) CEO compensation may offer a new direction to empirical investigations of the effects of the size of CEO pay ratio on other corporate decisions. We also obtain a similar pattern when considering other compensation components, such as inside debt and equity compensation. This pattern of results on dividend policy across CEOs with different pay structures contradicts the findings of some previous studies and indicates the social welfare effect of the CEO pay ratio disclosure requirement. Additional analysis reveals that the magnitude of the CEO pay ratio is negatively associated with the level of cash holdings, thus alleviating the possibility of CEO entrenchment. Finally, our analysis shows a negative effect of the CEO pay ratio on investment inefficiency. In sum, our study significantly contributes to identifying the effect of the CEO-employee pay ratio.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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APPENDIX A: VARIABLE DEFINITIONS

Variable	Definition	Source
Main regressions		
<i>Payout Ratio</i>	The ratio of cash dividends declared on common/ordinary shares (DVC) to net income before extraordinary items (IB).	Compustat
<i>Dividend/Cash Flow</i>	The ratio of cash dividends declared on common/ordinary shares (DVC) to the sum of net income (IB) plus depreciation and amortization (DP).	Compustat
<i>Total Payout Ratio</i>	The ratio of cash dividends (DVC) and repurchases to net income before extraordinary items (IB). The repurchase amount is the purchase of common and preferred stock (PRSTKC) minus a decrease in the value of preferred stock outstanding (PSTKRV; if missing, then PSTK).	Compustat
<i>Dividend/Sales</i>	The ratio of cash dividends declared on common/ordinary shares (DVC) to total sales (SALE).	Compustat
<i>Dividend Per Share</i>	The cash dividends (DVC) divided by the average or actual number of common/ordinary shares outstanding, adjusted for securities identified as common/ordinary stock equivalents as reported by the company (CSHPRIA/CSHPRI), adjusted for all stock splits and stock dividends that occurred during the period (AJEXI/AJEX).	Compustat
<i>Dividend Yield</i>	The dividend per share by ExDate (DVPSX)/stock price (PRCCF).	Compustat
<i>Log(CEO Pay Ratio)</i>	The natural logarithm of the CEO pay ratio as derived from the University of Alabama library website.	
<i>R&D/Total Assets</i>	The research and development spending (XRD) scaled by sales (AT).	Compustat
<i>Capex/Total Assets</i>	The capital expenditure (CAPX) scaled by total assets (AT).	Compustat
<i>Market/Book</i>	The market value of equity (PRCC_F*CSHO) divided by the book value of equity [Common Equity - Liquidation Value(CEQL) plus deferred taxes and investment tax credit (TXDITC) minus total preferred stocks (PSTK)].	Compustat
<i>Profitability</i>	The earnings before extraordinary items (IB) minus preferred dividends (DVP) plus deferred taxes and investment tax credit (TXDITC).	Compustat
<i>Retained Earnings/Total Assets</i>	The retained earnings (RE) scaled by total assets (AT).	Compustat
<i>Size</i>	The percentage of firms with smaller market equity.	Compustat
<i>Change in Assets</i>	The percentage change in assets from year $t-1$ to t .	Compustat
<i>Return Volatility</i>	The standard deviation of daily stock returns.	CRSP
<i>Cash</i>	The natural logarithm of the cash and marketable securities (CHE).	Compustat
<i>Sales Growth</i>	Percentage change in sales (SALE) from year $t-1$ to t .	Compustat
<i>Cash Flow Volatility</i>	The standard deviation of a firm's cash flows from operations (OANCF) from year $t-5$ to $t-1$.	Compustat
<i>Stock repurchases</i>	The natural logarithm of the purchase of common and preferred stock (PRSTKC) scaled by market capitalization (CSHO*PRCC_F).	Compustat
<i>Alt. Stock Repurchase</i>	The annualized value of total shares repurchased (CSHOPQ) times the end of quarterly repurchase price (PRCCQ).	Compustat
<i>Stock Repurchase Net of Issue</i>	The amount of share repurchases (PRSTKC) net of share issues (CSHI) scaled by lagged market capitalization. Market capitalization is derived by multiplying common shares outstanding (CSHO) by closing price (PRCC_F).	Compustat
<i>Market-to-book ratio</i>	Book value of assets, less the book value of equity, plus the market value of equity, scaled by total assets.	Compustat
<i>Real Size</i>	The natural log of assets deflated using the CPI to 1994 dollars. Source:	Compustat
<i>Cash Flow/assets</i>	Earnings before interest and taxes, but before depreciation and amortization, less interest, taxes, and common dividends, scaled by total assets.	Compustat
<i>R&D/Sales</i>	Research and development spending scaled by sales.	Compustat

(Continues)

Variable	Definition	Source
<i>Firm Leverage</i>	(Long-term debt + short-term debt)/book value of assets.	Compustat
<i>Capital Expenditures/asset</i>	Capital expenditure scaled by total assets	Compustat
<i>Industry Sigma</i>	The mean of standard deviations of cash flow over assets over 20 years for firms in the same industry, as defined by the 2-digit SIC code.	Compustat
<i>Dividend dummy</i>	A dummy variable set to 1 if the firm paid a dividend in the year and set to 0, otherwise.	Compustat
<i>Industry Sigma</i>	The mean of standard deviations of cash flow over assets over 20 years for firms in the same industry, as defined by the 2-digit SIC code.	Compustat
CEO Compensation Variables		
<i>CEO delta</i>	The sensitivity of CEO equity compensation to stock price changes.	ExecuComp
<i>CEO vega</i>	The sensitivity of equity compensation to stock return volatility.	ExecuComp
<i>CEO inside debt</i>	The total of deferred compensation plans at fiscal year (DEFER_BALANCE_TOT) plus the present value of accumulated pension benefits from all pension plans (PENSION_VALUE_TOT).	ExecuComp
<i>CEO equity holding</i>	The total of CEO common stock value plus CEO unvested stock value plus CEO stock options value.	ExecuComp
<i>CEO leverage</i>	The ratio of CEO inside debt to CEO equity holdings.	ExecuComp
<i>CEO relative leverage</i>	The ratio of a CEO's leverage to the firm's debt-equity ratio.	ExecuComp
<i>CEO relative leverage dummy</i>	A dummy variable that takes a value of 1 if CEO relative leverage is greater than the firm's debt-equity ratio, and 0 otherwise.	ExecuComp
Investment efficiency Regressions		
<i>Investment</i>	The sum of R&D (XRD), capital (CAPX), and acquisition (AQC) expenditures minus the sale of property (SPPE) and depreciation and amortization (DP), scaled by the lag of total assets.	Compustat
<i>Capex</i>	The capital (CAPX) expenditures minus the sale of property (SPPE) and depreciation and amortization (DP), scaled by the lag of total assets.	Compustat
<i>Non-capex</i>	The sum of R&D (XRD) and acquisition (AQC) expenditures scaled by the lag of total assets.	Compustat
<i>R&D</i>	The research and development (XRD) expenditures scaled by the lag of total assets.	Compustat
<i>Institutional Holding</i>	The percentage of outstanding shares held by institutional investors.	13 F
$\sigma(\text{CFO})$	Standard deviation of firm i's cash flows from operations (OANCF) from year $t-5$ to $t-1$.	Compustat
$\sigma(\text{Sales})$	Standard deviation of firm i's sales from year $t-5$ to $t-1$.	Compustat
$\sigma(\text{Investment})$	Standard deviation of firms' investment from year $t-5$ to $t-1$.	Compustat
<i>LogAssets</i>	The natural logarithm of the book value of a firm.	Compustat
<i>Mkt-to-Book</i>	The book value of assets, less the book value of equity, plus the market value of equity, scaled by total assets.	Compustat
<i>Z-score</i>	The Altman's Z-Score.	Compustat
<i>Tangibility</i>	The ratio of property, plant, and equipment to total assets.	Compustat
<i>CFOsale</i>	The ratio of a firm's cash flows from operations (OANCF) to sales (SALE).	Compustat
<i>OperatingCycle</i>	The natural logarithm of receivables to sales plus inventory to cost of goods sold multiplied by 360.	Compustat
<i>Losses</i>	A dummy variable set to 1 if the firm reports net loss and 0, otherwise.	Compustat
<i>Firm Age</i>	The difference between the first year when the firm appears in CRSP and the current year.	CRSP