CEO Incentives and Acquisitions: Evidence from the Pay Ratio Disclosure Mandate*

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Abstract

We find that the sensitivity of CEO pay to firm size (pay-size sensitivity) drops by 60% after the first-time disclosure of a relatively higher CEO-worker pay ratio under the 2017 Pay Ratio Disclosure Mandate. The sensitivity of CEO "flow" pay to positive performance ("upside" pay-performance sensitivity) also declines by 86%, while downside pay-performance sensitivity remains unchanged. These results are consistent with the notion that greater public scrutiny of CEO compensation in high pay-ratio firms curbs CEO pay growth. We further show that the change in pay sensitivities is associated with a shift in the type of M&A deals firms pursue, as well as the market reaction to deal announcement. Specifically, firms engage in fewer large deals but more small deals, with large deals exhibiting higher quality but small deals showing lower quality. These results suggest that the weaker link between CEO pay and firm size incentivizes CEOs to switch screening effort from small deals to large deals, as they can no longer derive as much additional pay from undertaking large-scale but potentially value-destroying deals. Our results provide novel evidence on how arguably exogenous changes in the drivers of CEO compensation affect CEO decisions and firm outcomes. We provide a simple model showing that while the magnitude of pay-size sensitivity affects the allocation of screening effort between large and small deals, the magnitude of "upside" pay-performance sensitivity is irrelevant.

Keywords: Pay Ratio Disclosure, pay-size sensitivity, pay-performance sensitivity, CEO incentives, M&A

JEL Classification: G34, G38, J31, J38, M48

While there is significant debate surrounding CEO compensation and whether CEOs are overpaid, there is a paucity of evidence about how changes in CEO compensation structure (including both the level and composition of pay) affect CEO decision-making or actions, with potential implications for firm value.[1] Understandably, this is not an easy task. Changes to a CEO's compensation contract are likely endogenous to factors that might directly affect the CEO's actions and firm outcomes. It is therefore difficult to isolate the effect of changes in compensation features from the other factors influencing the CEO's actions.[2]

The issue is important not only for policymakers, but also for those responsible for setting CEO pay, i.e., members of the board Remuneration Committee, as well as stakeholders concerned about the impact of CEO pay on shareholder value, including investors. A recent survey of directors and investors conducted by Edmans, Gosling and Jenter (2023) raises questions about the importance of financial incentives in motivating CEOs. The survey respondents reported that financial incentives are of secondary importance compared to the importance of "fairness" in pay (e.g., being paid for good performance or being paid like their peers) and ex-post recognition.

One way to tease out how CEO actions respond to changes in compensation contract features is to examine the effect of external pressure on compensation. However, this approach is not immune from endogeneity concerns, since external pressure exerted on an individual firm (e.g., via a voluntary "Say-on-Pay" (SoP) shareholder proposal), is also endogenous. Cuñat, Giné, and

[1] Throughout this paper, we use "decisions" and "actions" interchangeably. However, "decisions" may be more appropriate in our context, as M&A activities, our main focus, are likely to be closely associated with CEO decisions, and it is less clear what specific "actions" a CEO must take to pursue an acquisition. In our model, we emphasize the CEO's project screening effort. Such effort could be rationalized as costly decision making, given that the opportunity cost of being preoccupied with a particular deal might reduce attention to other deals.

[2] Structural estimation of models of CEO pay can counterfactually address the implications of a pay-setting process that does not maximize shareholder value. Page (2018) estimates a model in which the board sets CEO pay and assigns some weight to the CEO's utility. This weight is interpreted as "CEO power". Compared to other CEO characteristics, CEO influence has a relatively modest impact on firm value. The Economics literature relies on experimental evidence to study how financial incentives affect performance outcomes and often finds weak effects (e.g., Camerer and Hogarth, 1999). However, experiments involving CEOs do not seem feasible.

Guadalupe (2016) address this issue via a regression discontinuity design around voting outcomes on voluntary Say-on-Pay proposals during the 2006-2010 period. They estimate that adopting a SoP leads to a 5 percent increase in firm value. However, they find no systematic effect of SoP on CEO pay. They argue that SoP has a heterogeneous impact on CEO pay (i.e., "one size does *not* fit all") and possibly also affects firm performance by providing shareholders "voice" to express dissatisfaction regarding firm performance.[3]

In this paper, we examine the impact of a recent policy on CEO pay disclosure which, as we show, changed how CEO compensation responds to some of its major drivers for one group of firms. For this group, we find that the policy affected one of the most important decisions a CEO makes, namely, an acquisition decision. In 2015, the SEC issued a pay ratio disclosure rule, requiring public firms to disclose both the median annual total compensation of all employees (excluding the CEO) and the ratio of the CEO's compensation to the median employee's compensation. This disclosure must be included in the annual proxy statement starting from the first fiscal year beginning in or after January 2017. Thereafter, calendar year-end companies started to disclose their 2017 pay ratios for the first time in the early months of 2018.

Reporting a relatively high ratio can expose firms to stricter scrutiny from various stakeholders, and result in higher reputational costs. After the disclosure of pay ratios, both retail and institutional investors seemed concerned about high within-firm pay disparity, reacting negatively through portfolio rebalancing (Pan et al., 2022; Chang et al., 2022). Shareholders were also more likely to vote "against" in Say-on-Pay votes and to advocate for more governance-related

[3] SoP became mandatory after the passage of the Dodd-Frank Act in 2010. In a recent paper, Barry (2024) presents a quantitative model to estimate the impact of a non-binding SoP provision on CEO pay, where boards take into account the threat of non-approval when setting CEO pay. He finds that SoP, despite its high approval rate, reduces CEO pay and increases firm value. He also conducts a counterfactual analysis and estimates that a binding SoP policy would raise CEO pay and lower firm value.

proposals after this regulation (Chang et al., 2022; Xu, 2024). Other studies have documented labor market consequences of this mandate, including diminishing labor productivity (Boone et al., 2023) and higher employee turnover (Dambra et al., 2024). Additionally, firms disclosing higher pay ratios were subject to more negatively-toned media coverage around the filing date of their proxy statements, as widely explored in these studies. Surprisingly, however, to the best of our knowledge, the impact of this policy on aspects of CEO pay, incentives, and the quality of CEO decision-making has not been examined.

If the negative publicity associated with the disclosure of high pay ratios is costly for the firm's managers and board members, as implied by the aforementioned studies, we would expect CEO pay to grow more slowly for such firms. Moreover, the sensitivity of CEO pay increase to its major drivers would become dampened. Two of the most important drivers of CEO pay are firm performance (Murphy, 1999) and firm size (Kostiuk, 1990). CEO compensation is typically linked to performance benchmarks, with higher pay when these benchmarks are attained. CEO compensation is also positively related to firm size, increasing as firms grow.[4] Especially relevant for our arguments, Bakke et al. (2024) show that one-third of U.S. top executives have bonus incentives explicitly tied to the firm's size, and these growth-promoting bonuses encourage more M&A activity.

We begin our analysis by examining whether firms with high pay ratios (using the median pay ratio in 2017 as a benchmark) curtail CEO compensation after the disclosure mandate, relative to those with low pay ratios.[5] We expect that performance-tied pay would be most affected by this

[4] While the effect of firm size on CEO pay is empirically well-established, there are likely several underlying reasons, ranging from more complex management tasks in larger firms to competitive assignment models (Gabaix and Landier, 2008).

[5] A major part of the post-mandate period overlaps with the COVID-19 period. We discuss the potential influence of COVID-19 on our results below.

mandate, as such pay is generally unavailable to rank-and-file employees and would likely draw heightened public scrutiny after the disclosure mandate (Yermack, 2006; Kuhnen and Niessen, 2012; Babenko et al., 2024). This notion aligns with our empirical results, which shows that the gap in CEO equity-based pay, especially in stock pay, between high and low pay ratio-firms decreases following the disclosure of pay ratios. We also find a similar effect for cash-based bonuses, including bonus and non-equity incentive plan, after 2017.

We next examine the changes in CEO pay-performance and pay-size sensitivity for high-ratio and low-ratio firms separately.[6] We find that the high-ratio firms experience a significant decline in both pay-size sensitivity and "upside" pay-performance sensitivity after the disclosure mandate. This suggests that CEOs in these firms receive less additional pay than before, even when their firms grow in size or perform better (Zhou, 2000; Bebchuk and Grinstein, 2005; Gabaix and Landier, 2006). However, we find no evidence of a significant change in "downside" pay-performance sensitivity for high-ratio firms, which implies that CEOs in these firms would still be penalized for destroying firm value. In contrast, both the pay-size and pay-performance sensitivities of low-ratio firms remain stable after the mandate.

Next, we turn to the analysis of M&A activities. We consider all completed deals which represent a transfer of control following Rossi and Volpin (2004) and Ortiz (2023), as CEOs are more likely to be involved in such transactions and play a crucial role. Our difference-in-differences (DiD) estimates indicate that, following the disclosure mandate, the likelihood of high-ratio firms engaging in large acquisitions relative to small acquisitions is significantly lower compared to low-ratio firms. Next, we examine the impact on M&A performance, measured by

[6] When considering pay-performance sensitivity, we mainly focus on the sensitivity of "flow" pay to firm performance, rather than the change in the value of their equity holdings (see Edmans et al., 2023).

the market response upon deal announcement. When analyzing all deals together, we find no significant change in the market response to M&A deal announcements for high-ratio firms relative to low-ratio firms. However, when separating by deal size, we find that the market response to large deals undertaken by high-ratio firms relative to low-ratio firms improves following the mandate, while the market response to small deals worsens.

To shed light on potential mechanisms behind the above results, we propose a simple model in which, in a given period, a manager can choose to acquire either a large target or a small target (henceforth referred to as investing in a large or a small project), or both. *Ex ante*, projects can be of either good or bad quality, and the manager can exert effort to screen a project and obtain an informative signal about its quality. Larger projects require more screening effort, and the cost of screening is increasing and convex in screening effort. The manager's pay change is assumed to be a function of both the project size and the net present value (NPV) of the projects, reflecting the sensitivity of pay to firm size and performance, respectively. However, screening effort is not observable and the manager is not compensated for such effort.

Prior to the disclosure mandate, pay-size sensitivity is assumed to be sufficiently high compared to pay-performance sensitivity, such that the benefit to the manager from investing in a large project outweighs any negative effect on pay, even if the project has a negative NPV. This implies that screening for large projects is redundant. The situation differs for small projects, however. If project NPV exhibits decreasing returns to scale, for small projects, the impact of a negative-NPV project is no longer offset by the size benefit. As a result, the manager is willing to incur the relatively small cost of screening a small project. Therefore, large projects are accepted without screening, where small projects are accepted only if screening reveals them to be of good quality.

Now suppose there is a decline in pay-size sensitivity after the disclosure mandate. A large project may no longer be preferable without screening. Given that large projects have more serious value implications than small projects, managers may switch to screening large projects rather than the smaller ones. We assume that if a large project is screened, the increasing and convex screening costs make it no longer optimal for the manager to screen a small project. Therefore, the likelihood of accepting a large project decreases because, under screening, a project is only accepted if it is of good quality. In contrast, the likelihood of accepting a small project increases, as small projects are now accepted without screening. This shift also implies that the average quality of large projects increases while that of small projects decreases.

Since the gain from screening stems from eliminating the "downside" loss, the weakening of the link between pay and ex-post value gains (e.g., positive stock returns) caused by the disclosure mandate does not affect the manager's wealth, as long as the downside sensitivity to value losses remain unchanged.[7] Thus, the model provides a possible mechanism for our empirical findings for high pay-ratio firms: after the mandate, as pay-size sensitivity and upside pay-performance sensitivity decrease while downside pay-performance sensitivity remains unchanged, firms undertake fewer large acquisitions and more small acquisition. Furthermore, large acquisitions perform better, while small acquisitions perform worse.

However, there are two caveats that need to be acknowledged in interpreting our results. First, as some studies have noted, high pay-ratio firms came under greater scrutiny following the disclosure of pay ratios. If governance mechanisms were strengthened, firms might avoid value-destroying activities irrespective of changes in CEO pay incentives. However, as we find, value

[7] Our empirical results indeed show that there is no change in downward sensitivity of pay to performance after the disclosure mandate.

destroying M&A activities by high-ratio firms do not disappear – these firms merely shift the type of deals they pursue. Although they engage in fewer large deals relative to small ones, small deals tend to destroy value, whereas large deals are value-increasing. Moreover, the stock market reactions suggest that, on average, market scrutiny is not exclusively focused on large deals. Thus, it seems unlikely that stricter governance mechanisms alone can explain the shift in the nature of M&A deals. Instead, the changes in CEO pay-incentives emerge as a plausible explanation.

Another caveat is that the post-disclosure period overlaps with the COVID-19 pandemic. Both pay trends and deal-making frequency could have been affected by the pandemic. It is conceivable that COVID-19 had differential effects the CEO compensation structure of high versus low pay-ratio firms. However, our objective is to establish possible links between changes in compensation structure and CEO decision making, regardless of the external reasons that cause the changes. Moreover, while COVID-19 could also have affected deal-making frequency, it is unclear why there should be a shift towards fewer large deals by the high pay-ratio firms, and why the quality of such deals should improve.

Our paper builds on the literature on the drivers and determinants of M&A activity, plausibly associating them with the nature of CEO compensation. Existing literature argues that firms engage in large-scale but value-destroying acquisitions, which we suggest is at least in part due to the way CEO pay is related to increases in firm size.[8] The Pay Ratio Disclosure Mandate curbs this agency problem to some extent by reducing the sensitivity of CEO pay to firm size, leading to more efficient large acquisitions. However, since large deals require more screening effort, smaller deals receive less scrutiny, which negatively affects shareholder wealth.

[8] The CEO's incentives stemming from the impact of firm size on pay is part of the "empire building" incentive (Masulis et al., 2007; Harford et al., 2012) that may involve non-pecuniary benefits.

Our study also contributes to the literature on the relation between disclosure and executive compensation. Many previous studies suggest that changes in disclosure content do not effectively curb CEO pay, and certain types of pay are added to CEO pay package instead (Gipper, 2021; Bloomfield, 2021). Two recent works by Knusta and Oesch (2020) and Chang et al. (2022) find no significant changes in total CEO compensation reported in the numerator of the pay ratio for fiscal year 2017. In contrast, we examine a longer sample period from 2012 to 2022, enabling us to study the long-term post-policy impacts. Our approach highlights the importance of examining heterogeneity in firm responses to the regulation, allowing us to study its effects on firms with varying levels of pay disparity.

In terms of policy implications, our findings provide evidence of the impact of the Pay Ratio Disclosure Mandate on firms' real decisions. The debate over the necessity and benefits of the policy has continued to intensify since the rule's announcement.[9] Recent academic studies have also questioned whether a cost-benefit analysis would justify the disclosure requirement (Crawford, 2020). While our results do not indicate any immediate shareholder wealth effects associated with the mandate, they do show that large deals are better screened, reducing the likelihood of empire building through such deals. This has potentially important consequences for shareholders, as underperforming large assets are typically more difficult to divest than small assets and may drain resources from profitable projects in the future.[10]

[9] For example, former SEC Commissioner Michael S. Piwowar argues that "no commenter provided us with any data that would allow us to quantify potential benefits given that there are estimated $1.3 billion in initial compliance costs."(https://www.sec.gov/newsroom/speeches-statements/dissenting-statement-open-meeting-pay-ratio-disclosure#_ftn27)

[10] There are several reasons why divesting larger non-performing assets that were created via acquisitions may be difficult. Boot (1992) proposes a model in which managers incur reputational costs of divesting underperforming assets that obtained via acquisition. Larger asset acquisitions and subsequent divestitures may attract more attention than smaller ones, increasing such reputational cost. Other reasons include the lack of a ready market, difficulties of valuation and due diligence, and so on, relative to smaller non-performing assets.

1. INSTITUTIONAL BACKGROUND AND RELATED LITERATURE

1.1 Institutional Background

Section 953(b) of the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act), enacted by the U.S. Congress in 2010, mandates that publicly traded companies disclose the ratio of CEO compensation to the median employee compensation. The preliminary rules of pay ratio disclosure were first proposed by the SEC in 2013, sparking significant interest and debate. The SEC received more than 287,400 comments on the proposal. Proponents of the changes argued that information on the CEO-employee pay ratio would provide investors with useful information in making investment decisions and exercising their shareholder rights, especially in cases where they have Say-on-Pay votes. However, opponents argued that CEO compensation ratios are incomparable across firms and that higher ratios might just reflect differences in managerial talent. This argument aligned with a substantial body of literature that justifies CEO-employee pay inequality, finding a positive relationship between pay disparity and firm value (e.g., Edmans, Gabaix, and Landier, 2008; Mueller, Ouimet, and Simintzi, 2017a, 2017b). Critics further contended that regulatory interventions could pressure companies into lowering CEO pay, potentially discouraging CEOs from fully utilizing their effort and talent, which might result in negative economic consequences.

Despite opposing views, the SEC adopted final rules in 2015, requiring public firms to disclose pay ratios from the fiscal year 2017.[11] Under the rule, CEO pay must align with the figures disclosed in the summary compensation table in the proxy statement, which includes total salary, bonus, equity awards, pension changes, and perquisites. However, the rule provides

[11] Smaller reporting companies, emerging growth companies, foreign private issuers, MJDS filers, and registered investment companies were exempt from this requirement.

companies with some flexibility in identifying their median employee and calculating that employee's compensation. For example, the rule allows companies to update the median employee determination every three years and to choose a determination date within the last three months of their fiscal year. The pay ratio rules also allow companies to make supplemental disclosures, such as providing additional ratios or details about the median employee if desired.

A Deloitte analysis of CEO pay ratios, based on data from the pay disclosures of 294 S&P 500 companies, revealed that 21 percent of the S&P companies provided additional context on their median employee, such as employee status, whether the individual is U.S. or non-U.S. based, and job title. Additionally, about 13 percent of companies disclosed supplemental ratios.[12] It has been suggested that such voluntary disclosure could help mitigate negative stakeholder perceptions, especially for companies with high pay ratios (Jung et al., 2018; LaViers et al., 2023).

1.2 Related Literature

Existing research documents that the Pay Ratio Disclosure Mandate has significant capital- and labor market consequences. For instance, Pan et al. (2022) find that firms reporting relatively high pay ratios experience negative stock market reaction. Additionally, inequality-averse institutional investors rebalance their portfolios away from high pay ratio stocks relative to other investors. Similarly, Chang et al. (2023) find that retail investors are sensitive to pay disparity and reduce their investment in stocks with elevated pay ratios. Boone et al. (2023) find that reporting a relatively or surprisingly high ratio reduces employee perceptions of their pay, weakens their views of the CEO, and hampers productivity growth. Dambra et al. (2024) also document a higher employee turnover after this mandate. Overall, these findings align with the idea that stakeholders

[12] See : https://deloitte.wsj.com/cfo/ceo-pay-ratio-disclosure-a-look-at-year-one-results-1530158533

react negatively to high pay ratios, perceiving such ratios as evidence of undesirable pay practices and weak corporate governance.[13]

Another strand of research investigates firms' response to expected public scrutiny of disclosed high pay ratios and their actions to mitigate the above negative impacts. For instance, Chang et al. (2023) find that boards of directors proactively adjust the mix of CEO compensation to mitigate potential populist criticism related to high pay ratios. Additionally, firms may also provide supplementary pay ratios (Jung et al., 2018), offer firm-specific explainations for the reported ratio rather than relying on boilerplate disclosures across firms (LaViers et al., 2023), and employ more complex methods to identify the median employee to lower reported pay ratios (Alam et al.,2022). Two studies also find that firms lower pay ratios through real actions. Specifically, Yeung (2020) documents that firms increase median employee pay through replacing low-skilled workers with investments in information technology or automation. Cheng and Zhang (2023) find that firms take the pay ratio of peers as a reference and decrease (increase) their CEO-worker pay ratios when their peers' pay ratios are relatively high (low).

Our paper differs from the previous studies by focusing on the impact of the pay ratio disclosure on CEO pay sensitivities, as well as how the changed CEO incentives impact firms' acquisition decisions and acquisition performance.

2. Compensation Drivers and Acquisition Decisions: A Simple Model

To link CEO compensation and acquisition decisions, we outline a simple model illustrating how the CEO's allocation of project screening effort is affected by two drivers of compensation: (i) the sensitivity of the CEO's pay to firm size, and (ii) the sensitivity of the CEO's

[13] Consistent with this idea, previous studies also find that high ratio firms are more prone to unfavorable Say-on-Pay votes and governance-related proposals from their shareholders (Chang et al.,2023; Xu, 2024).

pay to firm performance.

2.1 Setup

Suppose managers need to exert effort if they want to screen projects and determine whether a project is of good or bad quality. Effort can be allocated across different projects, and the effort (denoted by π) cost function is convex with a kink: For π≤ E, the marginal cost of effort is 0. For π> E, the marginal cost of effort is c > 0. There are two types of projects: large and small. The size of a small project is normalized to 1, while the size of a large project is s > 1. The NPV of a project with size 1 is random and denoted by $\tilde{v}$, with $E(\tilde{v}) = 0$. If the project is of good quality, the NPV is $v > 0$. If the project is of bad quality, the NPV is $-v$. The ex-ante probability of each quality type is 0.5. The NPV of a project with size S is $f(S) * \tilde{v}$, where $f(S)$ is an increasing function but $\frac{f(S)}{S}$ is decreasing in S, reflecting diminishing return to scale. Note that since $f(1) = 1$, $\frac{f(S)}{S} < 1$ for $S > 1$(large projects).

A firm's manager, who provides effort, has access to one large project and one small project and can choose to undertake either both projects or any one of them. Screening a large project requires effort E, while screening a small project only requires effort e < E.

The manager's compensation depends on project size (S) and the project's NPV, which relate to firm size and firm performance. The compensation is assumed to take the following linear form:

$$\Delta P = \alpha S + \beta(NPV) \quad (1)$$

where ΔP is the change in compensation due to project choice, $S = \{1, s\}$, and NPV$=S * E(\tilde{v})$.

2.2 Before Pay Ratio Disclosure Mandate

We first provide some conditions under which the pay-size sensitivity is such that larger

projects are accepted without screening (consistent with "growth promoting bonuses" driving M&A activity (Bakke et al., (2024)), but smaller projects are screened. We consider this to reflect the situation prior to the pay ratio disclosure mandate. Next, we examine how the effect of the mandate on pay-size and pay-performance sensitivities could change the CEO's incentives.

Proposition 1. *Suppose (i)* $\alpha - \beta v < 0$ *and (ii)* $\alpha s - \beta f(s) v > 0$ *. Then the manager chooses the large project without exerting screening effort and chooses the small project by exerting effort.*

Proof. Note first that conditions (i) and (ii) can both hold for sufficiently large *s*, since $\frac{f(s)}{s}$ is decreasing in s. Now (ii) implies that for a large project, ΔP is positive even in the bad state. Hence, no screening effort is necessary, as the project will be undertaken even if screening reveals it to have negative NPV. For the small project, (i) implies that ΔP is negative in the bad state. Taking a small project without screening effort generates an expected payoff of $\Delta P = \alpha$. If effort is exerted, the expected payoff becomes $\Delta P = 0.5(\alpha + \beta v)$, since if screening reveals the project to be of bad quality, it will be rejected. Note that effort cost is zero for the small project as e < E. Hence the gain from screening (compared to no screening) is $0.5(\alpha + \beta v) - \alpha = 0.5(\beta v - \alpha)$ which is positive from condition (i). Thus, the small project will be screened, and only projects with positive NPV will be chosen. [end proof]

2.3 After Pay Ratio Disclosure Mandate: Decline in Pay-Size Sensitivity

We first consider the effect of a lower pay-size sensitivity (documented in our empirical section as occurring after the pay ratio disclosure mandate) on the CEO's incentive to screen projects.

Proposition 2*. Suppose* α *changes to* $\alpha' < \alpha$ *such that (i)* $\frac{\beta}{\alpha'} \frac{f(s)-1}{(s-1)} v > 1$ *(which implies*

$\frac{\beta}{\alpha'}\frac{vf(s)}{s} > 1$ and also $\frac{\beta v}{\alpha'} > 1$ *) and (ii)* $\beta v - \alpha' < 2ce$. *Then the manager screens the large project and accepts the small project without screening.*

Proof. Since the large and bad project now adversely affects the manager's pay due to $\alpha' s - \beta f(s)v < 0$, the manager may choose to screen the large project. The gain from screening the large project is $0.5(\alpha' s + \beta f(s)v) - 0 - \alpha' s = 0.5(\beta f(s)v - \alpha' s) > 0$. For the small project, the marginal cost of screening is now c. Consider screening the small project, the net gain is $0.5(\alpha' + \beta v) - ce - \alpha' = 0.5(\beta v - \alpha') - ce$. Under condition (ii), this will not happen. Therefore, the manager accepts the small project without screening and earns a total of $0.5(\alpha' s + \beta f(s)v) + \alpha'$ from the two projects.

Note that the above analysis implies that the manager will not screen both projects. However, the manager could still choose to screen only the small project. The manager's payoff from screening only the small project and accepting the large project without screening is $0.5(\alpha' + \beta v) + \alpha' s$.

Comparing the manager's payoff from the two options, the manager prefers to screen the large project provided $0.5(\alpha' s + \beta f(s)v) + \alpha' > 0.5(\alpha' + \beta v) + \alpha' s$ or $\beta[f(s) - 1]v > \alpha'(s - 1)$, which is true from condition (i). [end proof]

What condition (i) in Proposition 2 requires is that the value gain to the manager from saving a larger loss by screening the large project rather than the small project should exceed the loss of benefit derived from project size. This loss saved from screening the large project is $0.5\,\beta f(s)v$, while the loss saved from screening the small project is $0.5\,\beta v$. Thus, the gain from screening the large project rather than the small is $0.5\,\beta[f(s) - 1]v$. Screening, however, leads to a loss of the benefit derived from project size, which is larger when the large project is screened rather than the small project, by the amount $0.5\,\alpha(s - 1)$. Therefore, screening the large project

is overall better if and only if $0.5\,\beta[f(s)-1]v > 0.5\,\alpha(s-1)$.

2.4 After Pay Ratio Disclosure Mandate: Asymmetric Decline in Pay-Performance Sensitivity

We next consider the effect of an asymmetric reduction in pay-performance sensitivity that occurs simultaneously with the decrease in pay-size sensitivity. The asymmetry is consistent with our empirical results: when performance is negative, there is no larger magnitude of decline in CEO pay after the pay ratio mandate; however, pay increases less when performance is positive.[14] Interestingly, in our model, this asymmetric decline has no effect on the CEO's incentive to screen projects**.**

Proposition 3. *Suppose β decreases to β' when NPV is positive but remains at β when NPV is negative. Assume that the conditions (i) and (ii) in Proposition 2 hold. Then the results of Proposition 2 continue to hold irrespective of the magnitude of β'.*

Proof. The asymmetry implies that the net gains from screening do not change, since the gain from screening comes from eliminating the loss to the manager from accepting the project when the NPV is negative. The manager's payoff from screening the large project and accepting the small project without screening now is $0.5(\alpha' s + \beta' f(s)v) + \alpha' + 0.5(\beta - \beta')v$. The payoff from screening the small project and accepting the large project without screening is $0.5(\alpha' + \beta' v) + \alpha' \mathrm{s} + 0.5 f(s)(\beta - \beta')v$. Comparing payoffs, it can be seen that the manager prefers to screen the large project if and only if $\frac{\beta f(s)-1}{\alpha'(s-1)} v > 1$, which is a condition already assumed for Proposition 2. To complete the proof, we note that the calculations in Proposition 2 regarding the benefit of providing screening effort remain unchanged. Therefore, the manager will

[14] In their survey of non-executive directors and investors, Edmans, Gosling, and Jenter (2023) suggest why there is resistance to CEO pay reduction.

either screen the large project or the small project, not both. [end proof]

The intuition for why the magnitude of β' does not matter for the choice between screening the large and the small project is that the "upside" benefit, when a project has positive NPV ($v > 0$), accrues to the manager (with probability 1/2) irrespective of whether the project is screened or not. However, the "downside" loss, when a project has negative NPV ($v < 0$), is avoided only if the project is screened. Therefore, as long as only the upward sensitivity changes and the downward sensitivity does not change, our conclusion in Proposition 2 would not change.

2.5 Implications from Simple Model

These results imply that when the pay-size sensitivity decreases, the weaker relationship between pay and deal (firm) size encourages managers to switch screening from small projects to large projects. This is because performance is now important for large deals when the size-related benefit that existed previously is reduced. Therefore, the likelihood of a large project decreases, while that of a small project increases. Additionally, the quality of the large project increases, while that of the small project decreases. However, the pay ratio disclosure's effect of weakening the link between pay and ex-post project NPV or returns has no impact on the manager's wealth as long as it only affects the upward sensitivity, while the downward sensitivity remains unchanged.

In this model, the decline in pay sensitivity has a positive impact on the firm value. This is because the large project has more serious value implications for shareholders than the small project, given that $0.5\beta[f(s) - 1]v > 0$. Overall, the firm is better off. However, this implication depends on some specific model assumptions, e.g., the manager has exactly one large and one small project to choose from. One reason (not modelled here) why the shift towards screening larger projects could benefit shareholders is that non-performing larger projects are more difficult to divest and could put more strain on future firm performance compared to smaller projects.

3. DATA AND METHODOLOGY

3.1 Data and Sample Selection

We obtained pay ratio data during 2017-2022 from the University of Alabama Libraries.[15] Each year, the database includes between 2,200 and 2,600 firms.[16] The dataset contains information on the median annual compensation of all employees (excluding the CEO), the annual total CEO compensation, and the ratio between these two numbers. Additionally, it includes details of the companies such as company names, CEO names, industries, and locations. However, unique company identifiers such as *gvkey* or *permno* are not provided. To address this limitation, we use fuzzy name matching algorithms to link company names in this database to those in Compustat, followed by a manual verification of each match to ensure accuracy. Through this process, we identify 1,939 unique firms that report their pay ratios for the 2017 fiscal year and have valid links to Compustat.

Following previous literature (Chang et al., 2023 and Dambra et al., 2024), we focus on firms with a December 31 fiscal year-end (initial reporting firms) since they are the first to report pay ratio data for the initial fiscal year-end date (December 31, 2017) in the early months of 2018. Firms with non-12/31 fiscal year-ends (delayed reporting firms) are excluded to ensure that all CEOs in our sample have a similar decision-making timeline. After excluding these delayed reporting firms, we are left with 1,869 unique firms. We further require firms to have CEO information available in ExecuComp, which leaves us with 1,215 unique firms in the final sample.[17]

We extract M&A deals announced during 2012-2022 from the Securities Data Company

[15] The data is available at website: https://guides.lib.ua.edu/c.php?g=879087&p=9004058.
[16] Note that smaller firms and emerging growth companies are exempt from the disclosure requirement.
[17] The significant reduction in the number of firms is due to the fact that ExecuComp contains only S&P 1500 firms.

(SDC) Platinum database. We follow the literature and require the deals to meet the following criteria: i) The deal status is "completed", ii) The deal represents a transfer of control, meaning the acquiror owns less than 50% of the target six months prior to the deal announcement and gains control of more than 50% of the target, iii) The deal value is non-missing to facilitate the subsequent classification of transactions into large and small deals, iv) The acquirer can be matched to the Compustat, CRSP and Execuomp databases.

Our sample period covers the 11-year period from 2012-2022 that surrounds the initiation of pay-ratio disclosure. Table 1 presents descriptive statistics for the main variables used in our analyses. Panels A and B provide firm- and CEO-level summary statistics. The average age of CEOs is 56 years old and 95% of them are men. The median pay ratio in 2017 is 87, meaning firms with a 2017 pay ratio higher than 87 are classified as high-ratio firms, while those with lower 2017 pay ratios are classified as low-ratio firms. The standard deviation for the pay ratio in 2017 is 323.23, indicating significant variation across companies.[18]

In Panel C of Table 1, we report the summary statistics for the M&A deals. Acquirers on average experience a relatively small announcement return of around 0.5%. Only 14.3% of M&A deals involve a public company as the target, while 52% are classified as diversified M&As. Since our sample only includes deals representing a transfer of control, the acquirer holds almost all (99.3%) of the target company's shares after deal completion. We categorize all M&A deals into two groups – large deals and smal deals – based on their absolute transaction value and relative deal size. A deal is categorized as large deal if it meets either of the following criteria: (1) the deal

[18] The minimum pay ratio is zero for six firms in 2017. For example, as a testament to his commitment to and belief in Twitter's long-term value creation potential, Twitter's CEO, Jack Dorsey, declined all compensation for 2017. The other four firms with pay ratio of zero are RE/MAX Holdings, Inc., Fossil Group, Inc., Alphabet Inc. Inc., Annaly Capital Management Inc and Shutterstock Inc. The maximum value for pay ratio is 5907.9 from WW International, Inc., which mentioned in their proxy statement that annual total compensation for the CEO in fiscal 2017 included several one-time compensation awards and benefits that the company does not expect to provide in future years.

value is higher than the median deal value of all transactions in the same year, or (2) the transaction value exceeds 5% (alternatively, 10%) of the acquirer's market capitalization.[19] Otherwise, the deals are classified as small deals. In our sample, large deals constitute 59.2% of the total, indicating a relatively balanced distribution between large and small deals.

Panel D of Table 1 highlights the differences in the main characteristics between high pay ratio firms and low pay ratio firms at the end of 2017. High pay ratio firms tend to be larger and are more likely to engage in large M&A deals compared to low pay ratio firms. Additionally, high pay ratio firms are, on average, more profitable and exhibit lower stock return volatility than low pay ratio firms. In contrast, low pay ratio firms conduct more investment activities as evidenced by their higher capital expenditures and PPE ratios.

3.2 Empirical Design

Before analyzing the impact of the Pay Ratio Disclosure Mandate on firm acquisitions, we first examine changes in CEO pay-size and pay-performance sensitivity after this mandate. We measure the sensitivity of CEO pay with respect to firm size by regressing change in the logarithm of compensation on the change in firm size. For pay-performance sensitivity, we adopt the methodology of Murphy (1986, 1999). Specifically, we regress the change in the logarithm of compensation on the change in shareholder wealth as the sensitivity of pay with respect to performance, where the change in shareholder wealth can be approximated by annual return. The regression models are as follows:

$$\Delta Ln(CEO\ Pay_{i,t}) = \beta_1 \Delta Size_{i,t} + \beta_2 \Delta Size_{i,t} \times Post_t + X'\Gamma + \eta_i + \Theta_t + \varepsilon_{i,t} \quad (2)$$

$$\Delta Ln(CEO\ Pay_{i,t}) = \beta_1 Ret_{i,t} + \beta_2 Ret_{i,t} \times Post_t + X'\Gamma + \eta_i + \Theta_t + \varepsilon_{i,t} \quad (3)$$

[19] In prior literature (Moeller et al., 2005; Barrios and Wollmann, 2022), the transaction-value-to-acquirer-market-value ratios of 10% and 5% are commonly used thresholds to distinguish between large and small deals.

where the dependent variable, $\Delta ln(CEO\ Pay_{i,t})$ is the change in the natural logarithm of CEO compensation, measured by item TDC1 in ExecuComp. The main independent variable is the interaction term between $\Delta Size_{i,t}$ and $Post_t$. $Post_t$ is a time dummy variable equal to one for the years 2018 to 2022 and zero otherwise. $Size_{i,t}$ is measured by the natural logarithm of book value of total assets or total sales. [20] The change in pay-size sensitivity after this mandate is captured by $\Delta Size_{i,t} \times Post_t$. X is a vector of control variables including ROA, leverage, Tobin Q, stock returns, stock return volatility, CEO tenure, duality, age and gender. Γ is the vector of corresponding coefficients. We include firm fixed effects to account for any time-invariant heterogeneity across firms, and year fixed effects to account for the general time trends in CEO pay.[21] Robust standard errors, adjusted for heteroskedasticity and clustered at the firm level, are used to calculate t-statistics.

We hypothesize that firms with high pay ratios will face increased scrutiny after the mandate, potentially limiting further increases in CEO pay even as firm size grows. Thus, for high-ratio firms, the coefficient β_2 is expected to be significantly negative.

To examine changes in CEO pay-performance sensitivity following the mandate, we use annual stock returns ($Ret_{i,t}$) as a proxy for firm performance and re-run the regression. To account for the potential asymmetry in pay-performance sensitivity, we design the test to capture pay sensitivities to both positive and negative performance. Specifically, we construct dummy variables $Positive_{i,t}$ and $Negative_{i,t}$ which equal the annual stock return if it is positive or negative , respectively, and zero otherwise. Then, we interact the two return variables with the time indicator variable ($Post_t$) to capture possible differential sensitivities of pay to performance for sample firms

[20] We avoid using market capitalization as a proxy for firm size, as it may contain information about stock return, which partially captures the effect of firm performance on pay.
[21] We also control for industry-year fixed effects.The industry is based on two-digit NAICS classifications.

after the mandate.

To further explore the mechanism through which this mandate affects pay sensitivity, we examine whether and how firms adjust the mix of compensation awarded to CEOs after the pay ratio disclosure. We estimate a difference-in-differences (DiD) regression as follows:

$$Ln(Each\ Component\ of\ CEO\ Pay_{i,t}) = \beta \times High_i \times Post_t + X'\Gamma + \eta_i + \Theta_t + \varepsilon_{i,t} \quad (4)$$

where the dependent variable, $Ln(Each\ Component\ of\ CEO\ Pay_{i,t})$, is the natural logarithm of each component of CEO compensation: salary, cash-based bonus (including bonus and non-equity incentive plans), equity-based awards (including stock and option awards)[22].The main independent variable, $High_i \times Post_t$, is a dummy variable equal to 1 for high pay-ratio firms after 2017, zero otherwise.

Then, we estimate the following DiD regressions to examine the impact of the Pay Ratio Disclosure Mandate on firm acquisitions:

$$The\ likelihood\ of\ large\ deals_{i,t} = \beta \times High_i \times Post_t + X'\Gamma + \eta_i + \Theta_t + \varepsilon_{i,t} \quad (5)$$

$$The\ proportion\ of\ large\ deals_{i,t} = \beta \times High_i \times Post_t + X'\Gamma + \eta_i + \Theta_t + \varepsilon_{i,t} \quad (6)$$

$$CAR_{i,j,t} = \beta \times High_i \times Post_t + X'\Gamma + \eta_i + \Theta_t + \varepsilon_{i,t} \quad (7)$$

In model (5), the dependent variable is the likelihood of large deals for firm *i* in year *t*, which is a dummy variable equal to 1(0) if firm *i* has at least one large (small) deal but no small (large) deal in year *t*. We drop firm-year observations for which firm *i* has both large and small deals or where firm *i* has no deals in year *t*.[23] In model (6), the dependent variable is the proportion of large deals for firm *i* in year *t*, defined as the number of large deals divided by the sum of the number of large deals and small deals. We keep firm-year observations for which firm *i* has at least

[22]Items salary, bonus plus non-equity incentive plan, stock (option)_award_fv in ExecuComp.

[23] We use OLS rather than conditional logistic regression since the interpretation of the interaction term in non-linear models such as logit and poisson can be problematic.

one deal in a year. The main independent variable in model (5) and (6), $High_i \times Post_t$, is a dummy variable equal to 1 for high pay-ratio firms after 2017, zero otherwise. Control variables include firm size, leverage, ROA, Tobin's Q, cash holding, capital expenditure, PPE, CEO age, gender, tenure and duality for the fiscal year preceding the acquisition announcement date. We include firm-fixed effects to control for time-invariant unobservable factors across firms that may affect M&A probability. Year or industry-year fixed effects are also included to account for the general or industry-specific time trends in M&A probability.

In Model (7), we estimate the effect of the mandate on M&A performance for large deals and small deals separately. The dependent variable is the cumulative abnormal return (CAR) for different event windows, calculated under the market model. Here, *i* indexes firms, *t* indexes years, and *j* indexes deals. To estimate the expected return for each transaction in the sample, we use trading days -150 through -50 relative to the event date as the estimation period. We require that a stock has at least 70 non-missing daily returns in the estimation period. The abnormal return is calculated as the difference between the actual daily return and the market model-predicted daily return using the estimated factor loadings. The daily abnormal returns are then cumulated over the event window to calculate CAR. We also follow previous studies and control for deal characteristics including relative deal size, payment method, diversification, public target, cross-border merger, and deal duration (e.g., Cai and Sevilir, 2012; Hauser, 2018; Gokkaya et al., 2023).

4. EMPIRICAL RESULTS

4.1 The Effect of Pay Ratio Disclosure on Components of CEO Pay

We begin by examining the impact of the Pay Ratio Disclosure Mandate on the different components of CEO compensation in high pay-ratio firms. We expect that, for high pay-ratio firms

facing heightened external scrutiny of their pay practice, the more controversial components of the CEOs' pay package such as bonus and stock grants will exhibit slower growth relative to low pay-ratio firms. Table 2 presents the results. In Panel A, the dependent variables are the natural logarithm of separate components of CEO compensation. The results indicate a modest reduction in CEO salary for high pay-ratio firms relative to low pay-ratio firms, with a 5.3% relative decline (p-value < 0.10). In contrast, there is a significant effect on CEO bonus and equity-based pay, showing 31.4% and 32.9% relative decline, respectively (p-value < 0.01). Further analysis in column (4) and (5) reveals that the reduction in equity-based pay is primarily attributable to stock awards rather than option awards, probably because the value of stock grants is easier for ordinary investors and the public to assess compared to option grants. Overall, these results align with the notion that large payouts from incentive awards attract more attention from the media and public than regular salary, prompting high pay-ratio firms to curb the growth of these components more aggressively.

Given that some components of CEO pay, especially bonus, stock and option pay, may take a value of zero in certain years, we investigate the extensive margin, i.e., the likelihood of a CEO receiving a particular type of pay, in Panel B of Table 2. The results indicate that CEOs of high pay-ratio firms are approximately 2.9% and 4.0% less likely to receive bonus and stock awards, respectively. We also employ Poisson regressions since log transformations may produce biased percentage estimates when there are too many "zero" value observations (Cohn, Liu, and Wardlaw, 2022; Chen and Roth, 2024). Results in Panel C of Table 2 show that CEO bonus and stock pay for high pay-ratio firms are approximately 12.9% (= exp (−0.139) – 1) and 18.1% (= exp (−0.200) – 1) lower relative to low pay-ratio firms following the introduction of the Pay Ratio Disclosure Mandate.

A crucial assumption for the consistency of the DiD estimator is that treated and control firms would exhibit parallel trends in the absence of the mandate. While the validity of this counterfactual cannot be directly tested, we follow the literature and examine whether there are any pre-trends. Specifically, we replace $High_i \times Post_t$ with a series of interaction terms: $High_i \times Pre_{-5}$, $High_i \times Pre_{-4}$, $High_i \times Pre_{-3}$, $High_i \times Pre_{-2}$, $High_i \times Pre_{-1}$, $High_i \times Post_0$, $High_i \times Post_{+1}$, $High_i \times Post_{+2}$, $High_i \times Post_{+3}$, $High_i \times Post_{+4}$. Here, Pre_{-n} for n=1,2,3, 4 and 5 is a dummy variable corresponding to *n* years before the implementation of the mandate, respectively. $Post_0$ is a dummy variable for the year 2018. $Post_{+n}$ for n=1,2, 3, and 4 is a dummy variable representing *n* years after the implementation of this mandate. The dynamic impact of this mandate on CEO pay is illustrated in Figure 1. The figure shows little difference in CEO stock pay (Panel A), bonus (Panel B), and salary (Panel C) during the pre-event period between the two groups of firms, but a noticeable relative decline for high pay-ratio firms in the post-event period.

Collectively, the results in Table 2 and Figure 1 demonstrate that high pay-ratio firms significantly reduce CEO incentive pay relative to low pay-ratio firms as they face heightened external scrutiny from the public following this mandate.

4.2 The Effect of Pay Ratio Disclosure on Pay-Size Sensitivity

Table 3 presents the result of CEO pay-size sensitivity before and after 2018, estimated using Equation (2). Column (1) demonstrates a significantly positive correlation between changes in CEO pay and changes in firm size for all firms in the sample.At the same time, the coefficient on the interaction term between firm size and the post-2017 dummy is negative but statistically insignificant.

Next, we conduct separate tests for high pay-ratio and low pay-ratio firms. In Column (2), we observe that firm size contributes significantly to CEO pay in high ratio firms, with a coefficient

of 0.292 (p-value<0.01) before the mandate. Importantly, after this mandate, high pay-ratio firms experienced a 60.6% decline in pay-size sensitivity (-0.177/0.292), as reflected by the coefficient for $\Delta Size_{i,t} \times Post_t$. Column (3) presents the result for low pay-ratio firms, where the coefficient on $\Delta Size_{i,t}$ is positive but statistically insignificant. Additionally, Column (3) shows no significant change in pay-size sensitivity for low ratio firms. These results are in line with our expectations. Column (4) to (6) are similar to Column (1) to (3) except that we replace year fixed effects with industry-year fixed effects, and our results continue to hold. For robustness, we also use total sales to measure firm size and the results hold in Panel B of Table 3. Therefore, the results in Table 3 indicate that, consistent with our prediction, high pay-ratio firms, relative to low pay-ratio firms, experience a significant decline in pay-size sensitivity after the mandate.

4.3 The Effect of Pay Ratio Disclosure on CEO Pay-Performance Sensitivity

Next, we examine CEO pay-performance sensitivity before and after 2018, estimated using Equation (3). The results are presented in Table 4, where contemporary annual stock return is used to measure firm performance. In Column (1), splitting stock return into positive and negative components reveals that changes in CEO pay are strongly related to both negative return and positive return for all firms before the mandate, with coefficients of 0.256 and 0.330, respectively. However, the negative coefficient on the interaction of positive return and post ($Positive_{i,t} \times Post_t$) indicates that a substantial portion of the positive baseline relation between good stock performance and changes in pay is eliminated after the mandate. In contrast, the coefficient on the interaction term between negative return and post ($Negative_{i,t} \times Post_t$) is insignificant, suggesting that the sensitivity for poor stock performance remains unchanged after the mandate.

Results in column (2) further show that the post-mandate decline in upside pay-performance sensitivity in column (1) comes from high pay-ratio firms, which experience about

86.98% decline (-0.274/0.315). In constrast, the downside pay-performance sensitivity remains unaffected for high pay-ratio firms. Thus, while CEOs in high ratio firms continue to be penalized for poor performance, they are not awarded as much as before for good performance. Additionally, Column (3) shows that low pay-ratio firms experience little decline in upside pay-performance sensitivity, which is consistent with low pay-ratio firms facing less pressure to curb CEO pay following good performance. Columns (4) to (6) show that these results remain robust when we control for industry-year fixed effects instead of year fixed effects.

As a robustness check, we follow a large literature that uses "delta" (Core and Guay, 2002; Coles et al.,2006; Chava and Purnanandam, 2010) and "alignment" (Kale et al., 2009; Dasgupta et al., 2017) as alternative measures of pay-performance sensitivity. Delta measures a CEO's stock and option value sensitivities to a 1% change in stock price, while alignment measures a CEO's stock and option value sensitivities to a $100 change in shareholder wealth. As shown in Table B1 of Appendix B, before 2018, a 1% change in stock price ($100 change in shareholder wealth) results in a $1,250,000 ($2.21) change in CEO wealth for high pay-ratio firms. However, after 2018, the corresponding change in CEO wealth is reduced to just $950,000 ($1.59). For low pay-ratio firms, both delta and alignment remain relatively stable before and after 2018. The difference-in-difference analysis in Table B2 of Appendix B also shows that delta and alignment are significanly lower for CEOs in high pay-ratio firms following the mandate, compared to CEOs in low pay-ratio firms. It is worth noting that these two measures consider only stock and option value, excluding other components of CEO compensation. Additionally, these measures cannot distinguish asymmetric pay-performance sensitivities as Equation (3). Nevertheless, these results provide additional evidence that this new mandate curbs the growth of CEO pay driven by strong stock market performance in high pay-ratio firms.

4.4 The Effect of Pay Ratio Disclosure on M&A Activity: Decisions to Acquire

In this subsection, we investigate the effect of Pay Ratio Disclosure Mandate on acquisitions using DiD regressions. In Table 5, the dependent variables are two measures capturing the relative quantities of large and small deals. Results in column (1) and (2) are estimated using Equation (5), while results in remaining columns are derived from Equation (6). The coefficients of the interaction term between $High_i$ and $Post_t$ are significantly negative in all columns, suggesting that CEOs in high pay-ratio firms decreases the proportion of large deals compared to CEOs in low pay-ratio firms. This highlights distinct impacts across deal types. Specifically, following the implementation of this mandate, the likelihood for CEOs in high pay-ratio firms to pursue large deals rather than small deals decreases by 9.6% (10.7%) when using 5% (10%) as the threshold for relative deal size (Panel B of Table 5). Furthermore, the proportion of large deals declines by 8.5% (7.9%) after controlling for firm and year fixed effects. The decline is more pronounced, reaching 11.7% (11.2%) when firm and industry-year fixed effects are included.

Figure 2 illustrates the dynamic effects of the mandate on CEOs' decisions to engage in large and small deals. Both Panel A and Panel B demonstrate a declining trend in the coefficients during the post-2017 period, indicating a shift in acquisition behavior following the mandate. In contrast there are no significant changes in coefficients prior to this mandate, supporting the parallel trend assumption.

To address the possibility that high pay-ratio firms may be expriencing a decreasing trend in year-on-year percentage changes in CEO pay levels over the past decade relative to low pay-ratio firms, we conduct placebo tests to rule out cofounding trends. Specifically, we re-estimate Equation (2) and (3) using 2014 as the pseudo event year, with years 2011, 2012 and 2013 designated as pre-period and years 2015, 2016, and 2017 as the post-period. High and low pay-

ratio firms are the same firms as in the current sample (as determined by 2017 pay ratio revealed in 2018). If the observed decrease in CEO pay sensitivity is driven by the mechanical downward trend in CEO pay rather than the exogenous shock of the Pay Ratio Disclosure Mandate, we would expect to observe significantly negative coefficients on $\Delta Size_{i,t} \times Post_t$ and $Positive_{i,t} \times Post_t$ in this placebo setting. However, the replicated results, presented in Panels A and B of Table 6, show that none of the coefficients is significant.[24] Similarly, when we replicate the results in Table 5 using 2014 as the pseudo event year, the interaction term between $High_i$ and $Post_t$ is insignificant across all specifications, as shown in Panel C of Table 6. These findings suggest that the observed decline in pay-size sensitivity, upside pay-performance sensitivity, and the number of large deals relative to small deals are not driven by pre-existing trends or other unobserved factors.

4.5 The Effect of Pay Ratio Disclosure on M&A Performance

To further support our main argument that CEOs shift their screening effort from small deals to large deals, we examine M&A performance (as reflected in the market reactions to deal announcements) after the Pay Ratio Disclosure Mandate. Table 7 reports the treatment effect on overall M&A performance, considering all deals. We find little evidence that M&A performance changes in response to the disclosure of pay ratio for high pay-ratio firms, as none of the coefficients under different event windows are statistically significant. However, when we separately analyze the performance of large and small deals in Table 8, the results align with our predictions. For high pay-ratio firms, large deals exhibit a 1.7% (2.9%) increase in three-day abnormal return around the deal announcement, while small deals experience a 1.0% (1.7%) decline instead. These findings are consistent with the predictions of our model, which suggests

[24] We do find the coefficient on the interaction term *Post*×*Negative* is significantly *positive* for the high pay-ratio firms in Panel B of Table 6. This could reflect the possibility that after the introduction of Say-on-Pay, high pay-ratio firms started to curb CEO pay following poor performance.

that the likelihood of undertaking a large acquisition decreases, but deal quality improves after the mandate. This is because CEOs exert more effort in screening large deals and only proceed with those expected to deliver strong performance. Conversely, the likelihood of small deals increases, but their quality declines, as the effort previously devoted to them is now redirected toward large deals.

In addition to transaction value, acquisitions can also be classified based on the type of target. Acquisitions of public targets are generally more influential and contribute more to firm size than those of non-public targets (private firms, subsidiaries, etc.). It has long been argued that acquisitions of public targets tend to elicit more negative stock market reactions than those of private targets and, on average, destroy shareholders' wealth (Koeplin et al., 2000; Cooney et al., 2009; Fuller et al., 2002).[25] In Table 9, we compare the change in M&A performance for different types of targets after the implementation of the Pay Ratio Disclosure Mandate. The results indicate that high pay-ratio firms experience a more positive market response when acquiring public targets after the mandate, while they face more negative market reactions upon announcement of non-public target acquisitions.

In addition to examining M&A probability and performance, we also analyze changes in M&A payment methods, which are relevant to CEO pay and represent a crucial feature of acquisitions. Given that the use of stock payment is associated with lower stock return upon the takeover announcement (Travlos,1987; Faccio and Masulis, 2005), CEOs could be cautious about using stock payment, as such payment would lower stock prices and, in turn, the value of their stock grants. Since our previous results (Table 2) show that CEO stock grants decline after the mandate, we would expect that CEOs are more willing to use stock payment, as their reduced

[25] The average CAR for public target M&A in our sample is -0.9%, while that of non-public target M&A is 0.6%.

dependence on stock compensation diminishes the personal impact of stock payment. We test this prediction and present the results in Table B3 of Appendix B, which show that, consistent with our prediction, there is an increase in the likelihood of using stock payment for high pay-ratio firms relative to low pay-ratio firms following the mandate.

4.6 The Effect of Pay Ratio Disclosure on CEO Pay around M&A

Existing literature shows that CEOs of bidding firms are rewarded for growth through acquisitions with substantial stock and option grants (Harford and Li, 2007) as well as large cash bonuses (Grinstein and Hribar, 2004). We therefore explore the impact of the Pay Ratio Disclsoure Mandate on CEO pay changes around M&As. Our previous results indicate that, for high pay-ratio firms, small deals and deals involving non-public targets exhibit worse performance following the mandate, and the downside pay-performance sensitivity remains unchanged after the mandate. As a result, we expect that, following the mandate, CEOs of high pay-ratio firms receive lower bonuses and pay growth around these deals relative to low pay-ratio firms.

Additionally, our previous results show that for high pay-ratio firms, large deals and deals involving public targets perform better following the mandate, but the upside pay-performance and pay-size sensitivities decline after the mandate. As a result, we expect that following the mandate, CEOs of high pay-ratio firms will not experience significant increases in pay growth around these deals relative to low pay-ratio firms.

Panel A of Table 10 presents the regression analysis comparing large versus small deals, where the dependent variables are the changes in the acquiring CEO's as a fraction of the CEO's starting pay over the M&A period. Following Harford and Li (2007), we start with CEO pay in the year prior to the deal announcement and then capture the pay differential realized by the acquiring CEO in the year after the acquisition (from year *ayr-1* to *cyr+1*). To ensure the accuracy of our

estimates, we exclude deal-firm-year observations in which a firm undertakes both large and small deals in the same year (and both public- and non-public target deals for Panel B), as it can be difficult to isolate the dominant type of deal influencing the CEO pay during that period. Thus, we restrict our analysis to deal-firm-year observations where firms engage in only one type of deal in a given year.

The results in Panel A Table 10 are consistent with the asymmetric decline in pay-performance sensitivity for high pay-ratio firms in Table 3. We find that around small deals, CEOs of high pay-ratio firms experience 32.6% lower pay growth relative to low pay-ratio firms after the mandate, however, there is no significant change for large deals. Panel B of Table 10 further compare deals involving public targets with those involving non-public targets. The results reveal that CEOs of high pay-ratio firms experience 34.2% lower pay growth around non-public target deals after the mandate. However, for public target deals, there is no significant change in CEO pay growth. Overall, these results show that CEOs of high pay-ratio firms do not receive additional awards for making better-quality investments following this mandate, but they would still be penalized for making poor investments decisions.

5. CONCLUSION

The growth of CEO compensation has been a contentious issue and has generated considerable public attention and debate. However, there is a paucity of evidence on how changes in compensation structures influence CEO decision-making and actions. In this paper, we examine this issue by examining the impact of a significant policy introduced by the SEC, which mandates public companies to disclose the ratio of CEO compensation to the median employee's pay, starting from 2018. This disclosure requirement, intended to enhance transparency, has subjected companies to greater scrutiny and reputational risks, especially those revealing high pay ratios.

We investigate how pay ratio disclosure affects the sensitivity of CEO compensation to key factors such as firm performance and firm size, and its subsequent impact on M&A activities. We find that firms with high pay ratios experience a marked decrease in CEO pay growth relative to firms with low pay ratios. Moreover, both CEO pay sensitivity to size and performance become significantly weakened. This shift in compensation structure drives changes in M&A activities. Firms with high pay ratios engage in fewer large deals, but of higher quality, while pursue more, but lower-quality, smaller deals.

Our study also adds to the growing body of evidence on the real effects of disclosure regulations. By focusing on the heterogeneity in firm responses to the Pay Ratio Disclosure Mandate, we provide novel insights into how changes in compensation structure can influence CEO behavior and firm outcomes. While our analysis does not suggest immediate wealth effects for shareholders, the improved quality of large acquisitions and the reduction in empire-building incentives have long-term benefits for corporate governance. Future research could further explore the broader implications of such disclosure mandates on other aspects of corporate strategy and performance.

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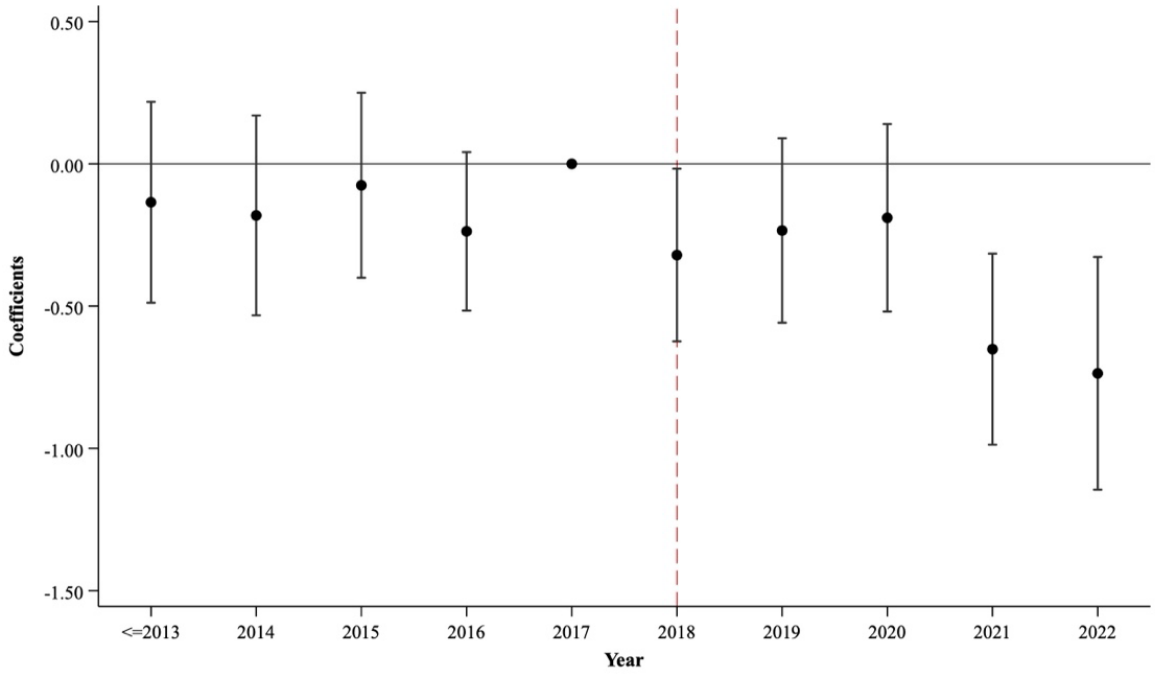
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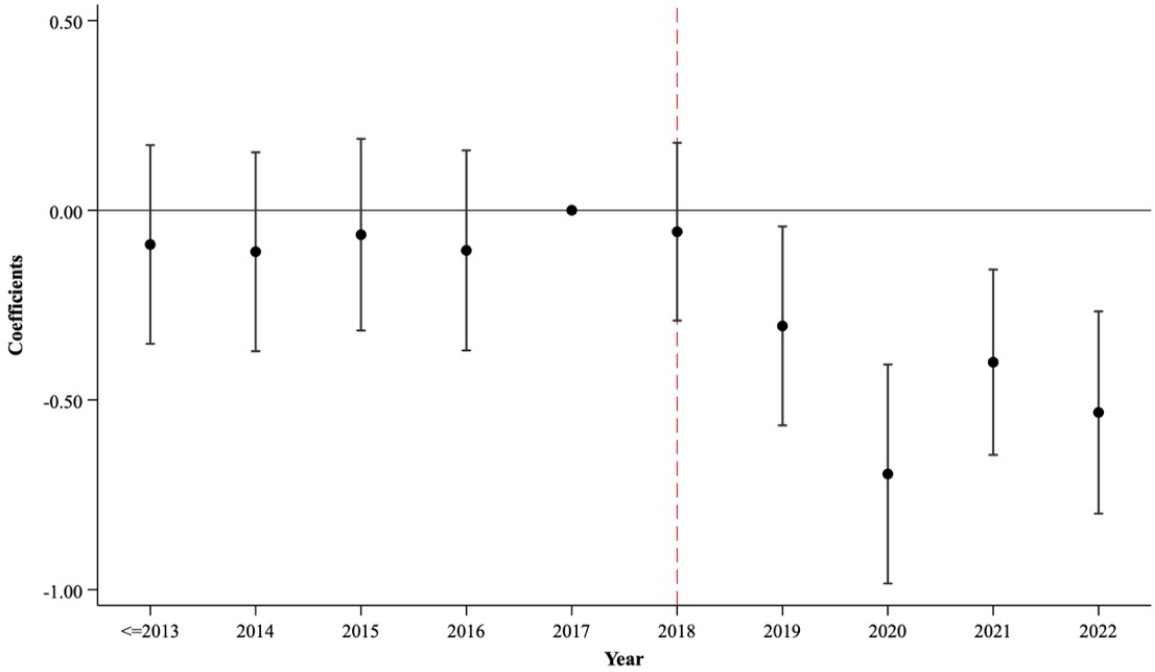
Figure 1
The Dynamic Impacts of Pay Ratio Disclosure Reform on CEO Compensation

This figure presents the dynamic impact of Pay Ratio Disclosure Reform on different components of CEO pay, specifically salary, cash bonus and stock pay. In panel A, the dependent variable is the natural logarithm of one plus the stock award each year. In panel B, the dependent variable is the natural logarithm of one plus the cash bonus each year. In panel C, the dependent variable is the natural logarithm of one plus the salary each year. The independent variables are $High_i \times Year_n$. $High_i$ is a dummy variable equal to 1 if the firm's pay ratio is higher than the sample median pay ratio in 2017. $Year_{-n}$ are dummy variables equal to 1 if year t is four or more years, three years, two years or one year before 2018, respectively, and zero otherwise. $Year_0$ is a dummy variable equal to 1 if year t is 2018. $Year_{+n}$ are similarly defined. Control variables include both firm characteristics and CEO characteristics. The solid dots represent the estimated coefficients with one year prior to the reform as the reference, while the solid vertical line segments present two-sided 95% confidence intervals. All models include firm and year fixed effects, and t-statistics are clustered at the firm level.

Panel A: The Dynamic Impact of Pay Ratio Disclosure Reform on CEO Stock Pay



Panel B: The Dynamic Impact of Pay Ratio Disclosure Reform on CEO Cash Bonus



Panel C: The Dynamic Impact of Pay Ratio Disclosure Reform on CEO Salary

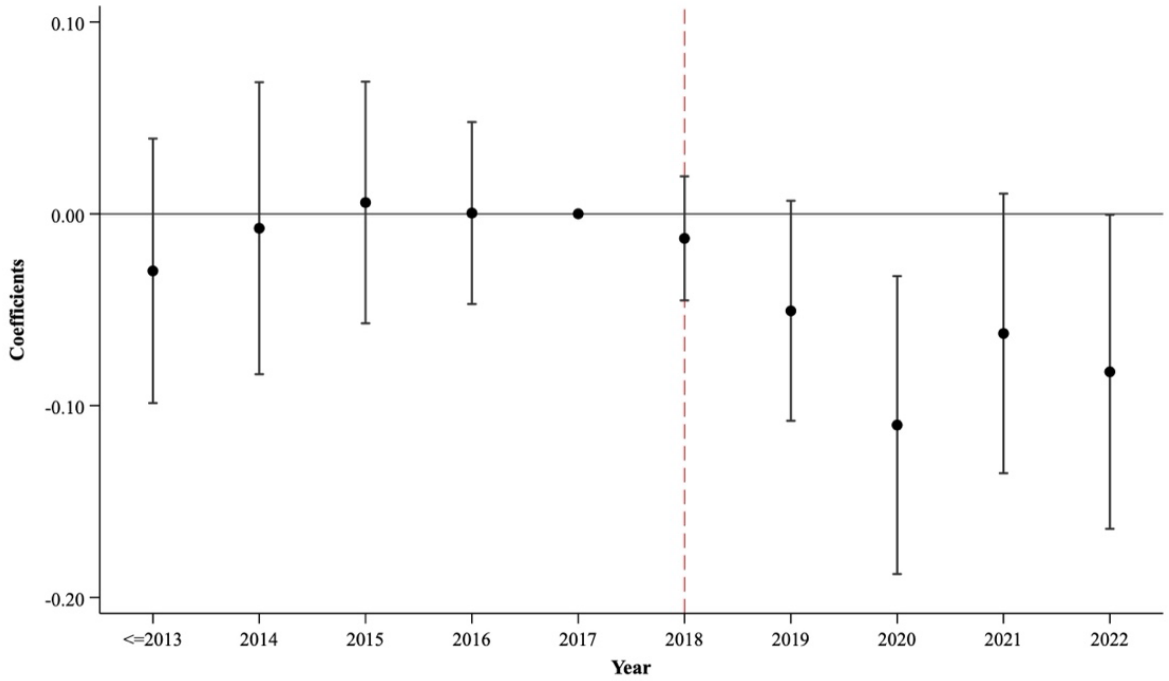
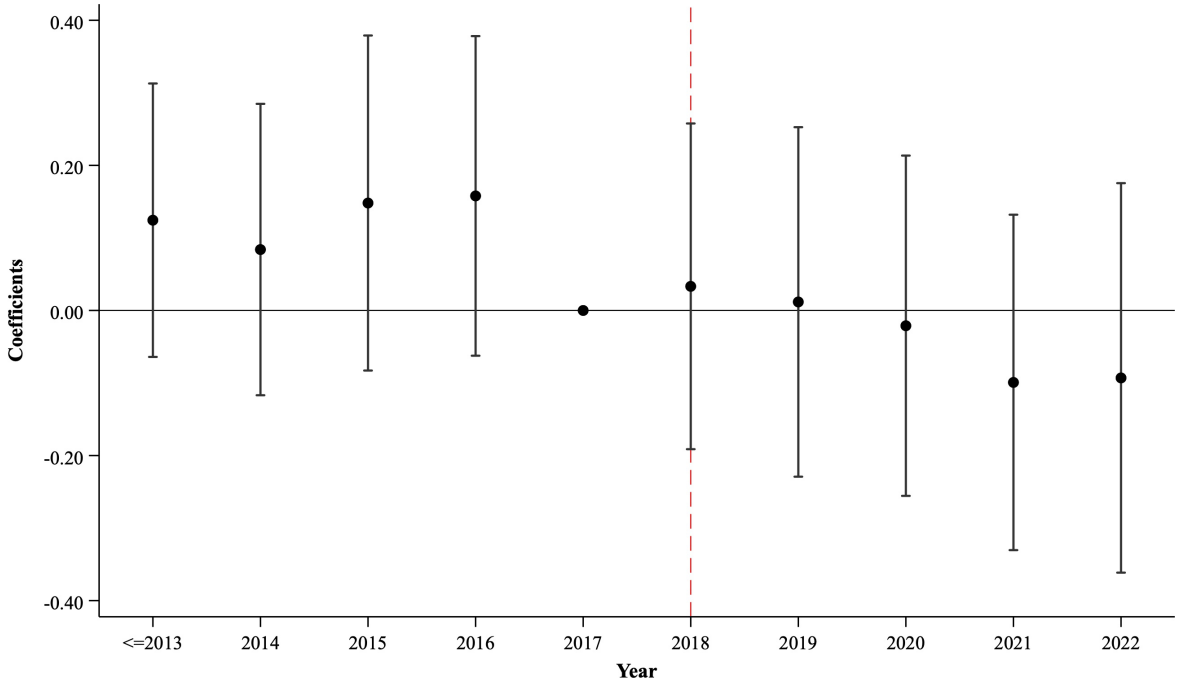


Figure 2

The Dynamic Impacts of Pay Ratio Disclosure Reform on Corporate Takeover Decisions

This figure presents the dynamic impact of Pay Ratio Disclosure Reform on corporate decisions to acquire. In panel A, the dependent variable is a dummy variable, *Large* which equals 1(0) if the firm has at least one large (small) deal but no small(large) deal in a year. In panel B, the dependent variable is *Fraction of Large Deals,* calculated as the number of large deals divided by the total number of small and large deals in each year.The independent variables are $High_i \times Year_n$. $High_i$ is a dummy variable equal to 1 if the firm's pay ratio is higher than the sample median pay ratio in 2017. $Year_{-n}$ are dummy variables equal to 1 if year t is four or more years, three years, two years or one year before 2018, respectively, and zero otherwise. $Year_0$ is a dummy variable equal to 1 if year t is 2018. $Year_{+n}$ are similarly defined. Firm characteristics and CEO characteristics are included as control variables. The solid dots represent the estimated coefficients with one year prior to the reform as the reference, while the solid vertical line segments present two-sided 95% confidence intervals. All models include firm and industry-year fixed effects, and t-statistics are clustered at the firm level.

Panel A: The Dynamic Impact of Pay Ratio Disclosure Reform on the Likelihood of Large Deals



Panel B: The Dynamic Impact of Pay Ratio Disclosure Reform on the Proportion of Large Deals

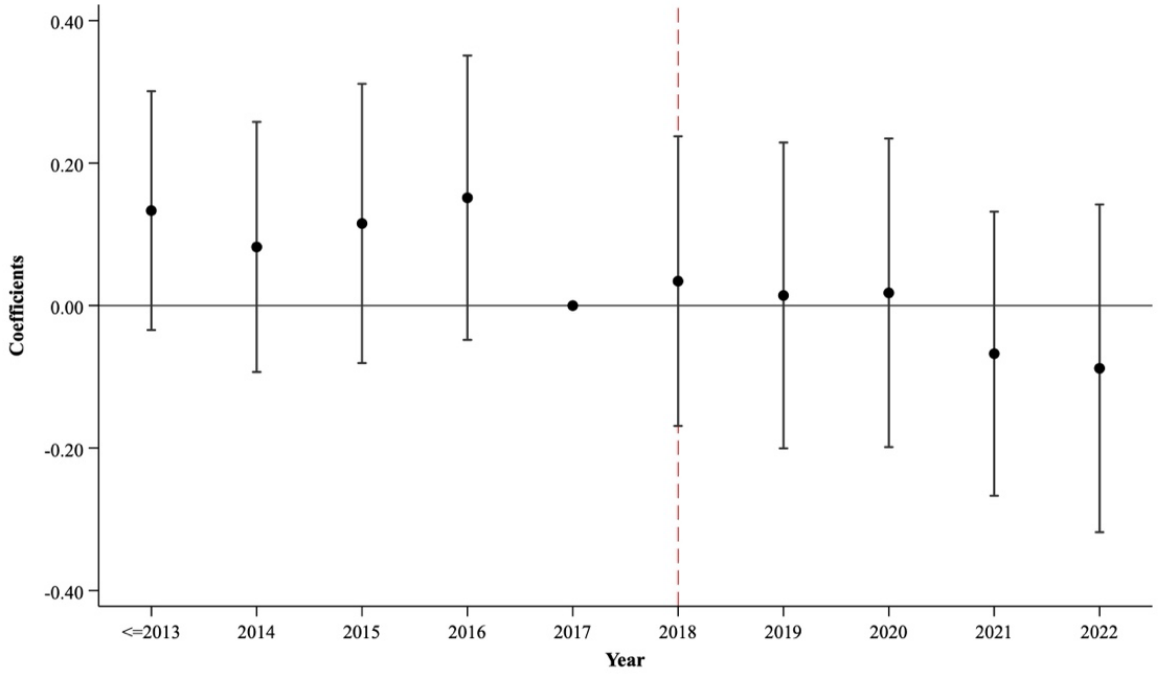


Table 1
Descriptive Statistics

Panel A reports summary statistics for firm characteristics from 2012 to 2022. *Size* is the natural logarithm of total assets. *ROA* is net income scaled by total assets. *Leverage* is total debt scaled by total assets. *Tobin's Q* is market value divided by book value of total assets. *Cash_holding* is cash scaled by total assets. *Cap* is capital expenditure scaled by total assets. *PPE* is net property, plant and equipment scaled by total assets. *Ret is* annual stock return. *Sigma* is annual stock volatility computed by monthly stock return. Panel B reports summary statistics for CEO characteristics and CEO pay from 2012 to 2022. *Ln (Age)* is the natural logarithm of CEO age. *Gender* is a dummy variable equal to 1 if the CEO is male, otherwise zero. *Ln (Tenure)* is the natural logarithm of CEO tenure plus 1. *Duality* is a dummy variable equal to 1 if a CEO also serves as chairman of the board. *Ln (CEO Pay)* is the natural logarithm of total CEO pay, measured by item *TDC1* from Execucomp. *Ln (Stock)* is the natural logarithm of stock awards plus 1. *Ln (Option)*, *Ln (Salary)* and *Ln (Bonus)* are similarly defined. Panel C reports summary statistics for M&A events from 2012 to 2022. *Large* is a dummy variable equal to 1 if the firm has at least one large deal but no small deal in a year, equal to 0 if the firm has at least one small deal but no large deal in a year. *Fraction of Large Deals* is the proportion of large deals for a firm in a year, which is missing if there is no deal in a year. *CAR* is cumulative abnormal return around M&A announcement using market model. *Cross_border* is a dummy variable equal to 1 if the acquirer and the acquiree are in different countries,0 otherwise. *Deal_size,* measured by the transaction value divided by the acquirer's total market value. *Diversify* is a dummy variable equal to 1 if the acquirer and the acquiree share different 2-digit SIC codes. *Cash* is a dummy variable equal to 1 if the deal is an all-cash payment deal, 0 otherwise. *Public* is a dummy variable equal to 1 if the target is public firm, otherwise 0. *Length* is the time period from deal announcement day to deal complete day.Panel D compares the main characteristics between high and low ratio firms before 2018.

Panel A: Firm-Level Variables

Var.	Obs.	Mean	SD	P10	P25	Median	P75	P90
Size	12333	8.420	1.761	6.225	7.220	8.358	9.537	10.698
ROA	12333	0.037	0.084	-0.021	0.010	0.035	0.072	0.120
Leverage	12333	0.281	0.209	0.014	0.100	0.268	0.417	0.555
Tobin's Q	12333	1.981	1.509	0.986	1.094	1.456	2.198	3.565
Cash_holding	12333	0.129	0.151	0.009	0.024	0.071	0.173	0.341
Cap	12333	0.037	0.046	0.000	0.005	0.022	0.049	0.086
PPE	12333	0.227	0.254	0.002	0.024	0.122	0.350	0.681
Ret	12311	0.149	0.373	-0.282	-0.082	0.118	0.332	0.585
Sigma	12311	0.093	0.052	0.044	0.058	0.079	0.112	0.157

Panel B: CEO Characteristics

Var.	Obs.	Mean	SD	P10	P25	Median	P75	P90
Ln (Age)	12333	4.037	0.126	3.871	3.970	4.043	4.111	4.174
Gender	12333	0.952	0.214	1.000	1.000	1.000	1.000	1.000
Ln (Tenure)	12333	1.613	1.019	0.000	0.693	1.792	2.398	2.890
Duality	12333	0.455	0.498	0.000	0.000	0.000	1.000	1.000
Pay Ratio	1215	161.328	323.231	25.900	47.000	87.000	164.70	319.700
Ln (CEO Pay)	12311	8.531	1.154	7.337	8.019	8.654	9.196	9.640
Ln (Salary)	12311	6.649	0.840	6.196	6.479	6.775	6.981	7.209
Ln (Bonus)	12310	6.388	2.315	1.557	6.223	7.028	7.662	8.200
Ln (Stock)	12311	6.621	3.121	0.000	6.612	7.804	8.556	9.073
Ln (Option)	12311	2.701	3.585	0.000	0.000	0.000	6.909	7.970

Panel C: Deal Variables

Var.	Obs.	Mean	SD	P10	P25	Median	P75	P90
Large	1110	0.533	0.499	0.000	0.000	1.000	1.000	1.000
Fraction of Large Deals	2196	0.592	0.464	0.000	0.000	1.000	1.000	1.000
CAR [-1,1]	3304	0.005	0.052	-0.038	-0.014	0.004	0.022	0.052
Cross_border	3304	0.201	0.401	0.000	0.000	0.000	0.000	1.000
Deal_size	3304	0.089	0.157	0.003	0.011	0.033	0.089	0.230
Diversify	3304	0.520	0.500	0.000	0.000	1.000	1.000	1.000
Cash	3304	0.283	0.450	0.000	0.000	0.000	1.000	1.000
Public	3304	0.143	0.350	0.000	0.000	0.000	0.000	1.000
Length	3304	2.516	2.208	0.000	0.000	3.401	4.454	5.159
Δ CEO Pay	2277	0.348	0.885	-0.319	-0.039	0.163	0.483	1.015

Panel D: Comparison between High and Low Pay Ratio Firms before 2018

	Low Ratio		High Ratio		
Variables	N	Mean	N	Mean	Low-High Difference
# of large deals	3326	0.133	3356	0.209	-0.076***
Size	3326	7.513	3356	8.934	-1.422***
ROA	3326	0.024	3356	0.048	-0.024***
Leverage	3326	0.235	3356	0.285	-0.051***
Tobin's Q	3326	1.924	3356	1.892	0.033
Cash_holding	3326	0.153	3356	0.119	0.034***
Cap	3326	0.042	3356	0.039	0.003**
PPE	3326	0.229	3356	0.222	0.007
Duality	3326	0.450	3356	0.565	-0.115***
Tenure	3326	1.697	3356	1.566	0.131***
Age	3326	4.020	3356	4.032	-0.012***
Gender	3326	0.958	3356	0.96	-0.002
Ln (CEO Pay)	3312	7.806	3356	8.82	-1.015***
Ret	3326	0.188	3356	0.193	-0.005
Sigma	3325	0.087	3354	0.073	0.014***

Table 2
The Effect of Pay Ratio Disclosure on Components of CEO Pay

This table reports the treatment effect of Pay Ratio Disclosure Reform on the components of CEO pay. Panel A presents the results of difference-in-differences tests where the dependent variables are the natural logarithm of separate components of CEO compensation in the form of salary, cash bonus, equity-based pay, annual stock awards, annual option awards. The dependent variables in Panel B are indicator variables equal to one if a specific component of CEO pay is non-zero in a given year. The dependent variables in Panel C are CEO cash bonus, equity pay, stock pay, and option pay and the models are estimated using Poisson regressions. The difference-in-differences estimator is captured by the interaction term between an indicator variable, *High*, equal to one for firms with pay ratio higher than the sample median in 2017, and an indicator variable, *Post*, set to one for fiscal years from 2018 to 2022. Control variables include stock return, stock volatility, firm size, leverage, ROA, Tobin's Q CEO duality, age, gender and tenure. Firm and year fixed effects are included in all models. T-statistics based on standard errors clustered by firm are reported in brackets. *, **, and *** denote statistical significance at 10%, 5%, and 1% level, respectively.

Panel A: Components of CEO Pay (OLS Regressions)

Dep. Var.	Ln (Salary)	Ln (Bonus)	Ln (Equity)	Ln (Stock)	Ln (Option)
	(1)	(2)	(3)	(4)	(5)
High×Post	**-0.053***	**-0.314*****	**-0.329*****	**-0.291****	**-0.161**
	(-1.76)	**(-3.73)**	**(-3.21)**	**(-2.30)**	**(-1.20)**
Ret	-0.024	0.815***	0.012	0.127*	-0.192***
	(-1.42)	(14.44)	(0.19)	(1.74)	(-2.70)
Sigma	-0.482***	-3.358***	-1.634**	-2.098**	-0.491
	(-2.62)	(-5.79)	(-2.32)	(-2.53)	(-0.66)
Size	0.094***	0.085	0.728***	0.695***	0.599***
	(4.59)	(1.24)	(7.33)	(6.25)	(5.70)
ROA	0.043	3.135***	0.184	0.058	-0.121
	(0.48)	(7.96)	(0.42)	(0.12)	(-0.24)
Leverage	-0.073	-0.045	-0.281	0.218	-0.262
	(-0.83)	(-0.20)	(-0.88)	(0.59)	(-0.77)
Tobin's Q	0.038***	0.032	0.111***	0.051	0.131***
	(3.15)	(1.31)	(2.83)	(1.12)	(2.62)
Duality	0.025	0.054	0.107	0.173*	-0.030
	(0.90)	(0.67)	(1.22)	(1.65)	(-0.26)
Age	0.066	-0.919**	-1.138**	-0.375	-1.334**
	(0.28)	(-2.23)	(-2.12)	(-0.60)	(-2.35)
Gender	0.007	-0.083	0.204	0.119	-0.130
	(0.10)	(-0.46)	(1.15)	(0.55)	(-0.47)
Tenure	0.026	0.016	0.056	0.007	0.045
	(1.21)	(0.43)	(1.27)	(0.13)	(0.84)
Constant	5.525***	9.500***	5.443**	2.106	3.002
	(5.82)	(5.45)	(2.37)	(0.79)	(1.23)
Firm FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Observations	12,311	12,311	12,311	12,311	12,311
Adj. R-squared	0.732	0.494	0.485	0.519	0.631

Panel B: The Likelihood of Receiving Pay of Particular Type

Dep. Var.	Bonus Pay Indicator	Equity Pay Indicator	Stock Pay Indicator	Option Pay Indicator
	(1)	(2)	(3)	(4)
High×Post	**-0.029****	**-0.032****	**-0.040****	**-0.008**
	(-2.45)	**(-2.47)**	**(-2.42)**	**(-0.44)**
Ret	0.077***	0.005	0.018*	-0.019**
	(9.79)	(0.62)	(1.87)	(-2.00)
Sigma	-0.421***	-0.156*	-0.241**	-0.043
	(-4.96)	(-1.74)	(-2.21)	(-0.42)
Size	-0.020**	0.058***	0.062***	0.070***
	(-2.06)	(4.61)	(4.30)	(4.83)
ROA	0.361***	0.016	0.014	-0.037
	(6.25)	(0.30)	(0.22)	(-0.55)
Leverage	0.000	-0.035	0.039	-0.035
	(0.00)	(-0.85)	(0.80)	(-0.75)
Tobin's Q	-0.001	0.003	-0.001	0.010
	(-0.41)	(0.74)	(-0.19)	(1.58)
Duality	-0.002	0.004	0.013	-0.011
	(-0.22)	(0.39)	(0.96)	(-0.70)
Age	-0.172***	-0.128*	-0.005	-0.210***
	(-3.01)	(-1.93)	(-0.06)	(-2.68)
Gender	-0.010	0.022	0.015	-0.020
	(-0.40)	(1.02)	(0.52)	(-0.54)
Tenure	-0.003	0.002	-0.007	0.005
	(-0.50)	(0.30)	(-0.95)	(0.68)
Constant	1.807***	0.921***	0.339	0.643*
	(7.52)	(3.23)	(1.01)	(1.91)
Firm FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	12,311	12,311	12,311	12,311
Adj. R-squared	0.378	0.385	0.447	0.618

Panel C: Poisson Regression

Dep. Var.	Bonus Pay	Equity Pay	Stock Pay	Option Pay
	(1)	(2)	(3)	(4)
High×Post	**-0.139*****	**-0.188*****	**-0.200*****	**0.049**
	(-3.68)	**(-3.10)**	**(-2.95)**	**(0.41)**
Controls	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	12,107	12,119	11,914	7,702
Pseudo R-squared	0.721	0.649	0.629	0.578

Table 3
The Effect of Pay Ratio Disclosure on CEO Pay-Size Sensitivity

This table studies the impact of Pay Ratio Disclosure Reform on CEO pay-size sensitivity. The dependent variable is change in the natural logarithm of CEO compensation, measured by item TDC1 in ExecuComp. The change in pay-size sensitivity after this mandate is captured by *ΔSize*×*Post*. *Size* is measured by the natural logarithm of total assets or total sales. *Post* is a time dummy variable set to 1 for years after 2017. Firms with pay ratios higher than the sample median in 2017 belong to high ratio group, otherwise belong to low ratio group. Firm and CEO characteristics are included as control variables. Firm and year or industry-year fixed effects are included in all models. T-statistics based on standard errors clustered by firm are reported in brackets. *, **, and *** denote statistical significance at 10%, 5%, and 1% level, respectively.

Panel A: Size Measured by Total Assets

Dep. Var.	Δ Ln (CEO Pay)					
	Full Sample	High Ratio	Low Ratio	Full Sample	High Ratio	Low Ratio
	(1)	(2)	(3)	(4)	(5)	(6)
Δ Size × Post	**-0.021**	**-0.177****	**0.076**	**-0.028**	**-0.170***	**0.064**
	(-0.36)	**(-2.16)**	**(0.85)**	**(-0.42)**	**(-1.95)**	**(0.64)**
Δ Size	**0.160*****	**0.292*****	**0.059**	**0.154*****	**0.286*****	**0.042**
	(3.55)	**(4.37)**	**(0.99)**	**(3.37)**	**(4.18)**	**(0.68)**
Ret	0.200***	0.236***	0.168***	0.210***	0.237***	0.185***
	(7.53)	(6.69)	(4.24)	(7.43)	(6.41)	(4.51)
Sigma	-0.605**	-0.532*	-0.613	-0.690**	-0.569*	-0.787*
	(-2.36)	(-1.89)	(-1.58)	(-2.53)	(-1.94)	(-1.78)
Tobin's Q	-0.001	-0.003	0.004	-0.002	-0.005	-0.001
	(-0.06)	(-0.26)	(0.40)	(-0.27)	(-0.41)	(-0.10)
Leverage	0.036	0.058	0.021	0.030	0.048	-0.024
	(0.65)	(0.80)	(0.26)	(0.50)	(0.63)	(-0.27)
ROA	-0.148	-0.174	-0.108	-0.191	-0.261	-0.134
	(-1.21)	(-0.96)	(-0.63)	(-1.46)	(-1.35)	(-0.73)
Duality	0.025	0.023	0.025	0.025	0.024	0.019
	(1.36)	(1.09)	(0.87)	(1.31)	(1.06)	(0.63)
Age	-0.192*	-0.107	-0.230	-0.199*	-0.103	-0.269*
	(-1.79)	(-0.89)	(-1.41)	(-1.84)	(-0.84)	(-1.70)
Gender	0.076**	0.067**	0.104*	0.066*	0.068*	0.090
	(2.24)	(2.05)	(1.76)	(1.89)	(1.94)	(1.53)
Tenure	0.014	0.025**	-0.001	0.015	0.025**	0.004
	(1.03)	(2.17)	(-0.03)	(1.13)	(2.17)	(0.17)
Constant	0.745*	0.361	0.915	0.794*	0.357	1.122*
	(1.77)	(0.76)	(1.43)	(1.87)	(0.74)	(1.82)
High-Low Diff		-0.253**(0.038)			-0.234*(0.070)	
Firm FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	NO	NO	NO
Ind-Year FE	NO	NO	NO	YES	YES	YES
Observations	12,107	6,149	5,958	12,097	6,139	5,943
Adj R-squared	0.047	0.074	0.042	0.067	0.116	0.073

Panel B: Size Measured by Total Sales

Dep. Var.	Δ Ln (CEO Pay)					
	Full Sample	High Ratio	Low Ratio	Full Sample	High Ratio	Low Ratio
	(1)	(2)	(3)	(4)	(5)	(6)
ΔSize × Post	**-0.033**	**-0.295*****	**0.040**	**-0.050**	**-0.314*****	**0.024**
	(-0.49)	**(-2.84)**	**(0.56)**	**(-0.75)**	**(-2.93)**	**(0.35)**
ΔSize	**0.113****	**0.433*****	**0.007**	**0.107****	**0.432*****	**-0.008**
	(2.41)	**(6.15)**	**(0.17)**	**(2.20)**	**(5.69)**	**(-0.18)**
Ret	0.203***	0.231***	0.172***	0.212***	0.233***	0.189***
	(7.43)	(6.40)	(4.26)	(7.28)	(6.14)	(4.61)
Sigma	-0.593**	-0.515*	-0.609	-0.684**	-0.571*	-0.773*
	(-2.29)	(-1.79)	(-1.56)	(-2.49)	(-1.90)	(-1.73)
Tobin's Q	-0.005	-0.007	0.001	-0.006	-0.010	-0.004
	(-0.59)	(-0.65)	(0.09)	(-0.71)	(-0.89)	(-0.38)
Leverage	0.063	0.085	0.050	0.057	0.081	0.003
	(1.12)	(1.17)	(0.61)	(0.93)	(1.05)	(0.03)
ROA	-0.096	-0.214	-0.036	-0.123	-0.261	-0.064
	(-0.81)	(-1.31)	(-0.22)	(-0.97)	(-1.50)	(-0.35)
Duality	0.027	0.022	0.029	0.027	0.022	0.022
	(1.50)	(1.06)	(0.99)	(1.42)	(1.00)	(0.75)
Age	-0.196*	-0.075	-0.244	-0.204*	-0.073	-0.286*
	(-1.82)	(-0.62)	(-1.50)	(-1.89)	(-0.60)	(-1.82)
Gender	0.069**	0.053*	0.095	0.058*	0.051	0.080
	(2.08)	(1.67)	(1.63)	(1.71)	(1.47)	(1.39)
Tenure	0.014	0.024**	-0.001	0.015	0.025**	0.003
	(1.03)	(2.08)	(-0.06)	(1.13)	(2.12)	(0.15)
Constant	0.770*	0.246	0.982	0.826*	0.255	1.198*
	(1.82)	(0.52)	(1.54)	(1.94)	(0.53)	(1.95)
High-Low Diff		0.335***(0.008)			0.338***(0.008)	
Firm FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	NO	NO	NO
Ind-Year FE	NO	NO	NO	YES	YES	YES
Observations	12,090	6,146	5,944	12,080	6,136	5,929
Adj R-squared	0.047	0.080	0.041	0.067	0.120	0.073

Table 4
The Effect of Pay Ratio Disclosure on CEO Pay-Performance Sensitivity

This table studies the asymmetric impact of Pay Ratio Disclosure Reform on CEO compensation sensitivity to firm performance. The dependent variable is change in the natural logarithm of CEO compensation, measured by item TDC1 in ExecuComp. *Positive* (*Negative*) return equals the annual stock return if it is positive (negative), and zero otherwise. The change in pay-performance sensitivity after this mandate is captured by the interaction term between *Positive (Negative)* and *Post*. Firm-level and CEO characteristics are included as control variables. Firm and year or industry-year fixed effects are included in all models. T-statistics based on standard errors clustered by firm are reported in brackets. *, **, and *** denote statistical significance at 10%, 5%, and 1% level, respectively.

Dep. Var.	Δ Ln (CEO Pay)					
	Full Sample	High Ratio	Low Ratio	Full Sample	High Ratio	Low Ratio
	(1)	(2)	(3)	(4)	(5)	(6)
Positive×Post	**-0.181*** **	**-0.274*** **	**-0.128**	**-0.184*** **	**-0.269*** **	**-0.155**
	(-2.70)	**(-3.12)**	**(-1.34)**	**(-2.62)**	**(-3.09)**	**(-1.49)**
Positive	**0.256*** **	**0.315*** **	**0.216*** **	**0.262*** **	**0.308*** **	**0.230*** **
	(6.17)	**(5.61)**	**(3.82)**	**(5.87)**	**(5.11)**	**(3.84)**
Negative×Post	**-0.032**	**0.225**	**-0.178**	**-0.082**	**0.256**	**-0.260**
	(-0.20)	**(1.33)**	**(-0.75)**	**(-0.50)**	**(1.47)**	**(-1.08)**
Negative	**0.330** **	**0.298*** **	**0.312**	**0.378** **	**0.307*** **	**0.407***
	(2.05)	**(2.63)**	**(1.23)**	**(2.39)**	**(2.59)**	**(1.67)**
Sigma	-0.588**	-0.433	-0.679*	-0.661**	-0.459	-0.834*
	(-2.25)	(-1.49)	(-1.72)	(-2.39)	(-1.52)	(-1.85)
Size	-0.014	-0.014	-0.019	-0.012	-0.006	-0.019
	(-0.74)	(-0.83)	(-0.60)	(-0.62)	(-0.32)	(-0.57)
Tobin's Q	-0.003	-0.008	0.002	-0.004	-0.008	-0.003
	(-0.38)	(-0.70)	(0.17)	(-0.46)	(-0.67)	(-0.23)
Leverage	0.083	0.118	0.057	0.071	0.104	0.009
	(1.44)	(1.61)	(0.68)	(1.15)	(1.32)	(0.10)
ROA	0.009	0.007	0.029	-0.058	-0.117	-0.023
	(0.07)	(0.04)	(0.17)	(-0.44)	(-0.64)	(-0.12)
Duality	0.026	0.020	0.028	0.026	0.021	0.022
	(1.41)	(0.96)	(0.97)	(1.36)	(0.93)	(0.75)
Age	-0.190*	-0.107	-0.226	-0.198*	-0.102	-0.270*
	(-1.79)	(-0.88)	(-1.40)	(-1.84)	(-0.82)	(-1.72)
Gender	0.074**	0.063*	0.101*	0.063*	0.064*	0.085
	(2.15)	(1.92)	(1.67)	(1.78)	(1.82)	(1.40)
Tenure	0.014	0.028**	-0.001	0.016	0.028**	0.004
	(1.09)	(2.43)	(-0.04)	(1.18)	(2.38)	(0.18)
Constant	0.863*	0.505	1.058	0.905*	0.420	1.293*
	(1.82)	(1.06)	(1.41)	(1.87)	(0.85)	(1.70)
Firm FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	NO	NO	NO
Ind-Year FE	NO	NO	NO	YES	YES	YES
Observations	12,107	6,149	5,958	12,097	6,139	5,943
Adj. R-squared	0.011	0.023	0.007	0.011	0.021	0.008

Table 5
The Effect of Pay Ratio Disclosure on M&A Activity: Large vs. Small Deals

This table presents the effect of Pay Ratio Disclosure Reform on CEOs' decisions to acquire. Large deals are defined as deals that satisfy either of the two conditions: (1) deal value is higher than the median deal value in the same year (2) transaction value exceeds 5% (Panel A) or 10% (Panel B) of the acquirer's market capitalization; otherwise, deals are classified as small deals. In column (1) and (2), the dependent variable is a dummy variable *Large*, equal to 1(0) if the firm has at least one large (small) deal but no small(large) deal in a year. In column (3) and (4), the dependent variable is *Fraction of Large Deals,* calculated as the number of large deals divided by the total number of small and large deals in each year.The independent variable is *High×Post*. Firm-level and CEO characteristics are included as control variables. Firm and year or industry-year fixed effects are included in all columns. T-statistics based on standard errors clustered by firm are reported in brackets. *, **, and *** denote statistical significance at 10%, 5%, and 1% level, respectively.

Panel A: 5% as Thresholds for Relative Deal Size

Dep. Var.	Large		Fraction of Large Deals	
	(1)	(2)	(3)	(4)
High×Post	**-0.096***	**-0.121****	**-0.085***	**-0.117****
	(-1.87)	**(-2.11)**	**(-1.90)**	**(-2.40)**
Size	-0.045	-0.054	-0.037	-0.044
	(-1.20)	(-1.26)	(-1.15)	(-1.26)
ROA	-0.057	0.090	-0.092	-0.016
	(-0.27)	(0.33)	(-0.49)	(-0.07)
Leverage	-0.015	-0.074	-0.063	-0.096
	(-0.09)	(-0.42)	(-0.44)	(-0.63)
Tobin's Q	0.046**	0.046**	0.046***	0.047***
	(2.49)	(2.25)	(2.76)	(2.60)
Cash_holding	0.028	0.035	0.004	-0.005
	(0.12)	(0.15)	(0.02)	(-0.02)
Cap	-0.271	-1.046	-0.123	-0.710
	(-0.40)	(-1.14)	(-0.22)	(-1.01)
PPE	0.085	0.224	0.045	0.154
	(0.31)	(0.68)	(0.29)	(0.95)
Duality	0.020	0.002	0.016	0.007
	(0.53)	(0.04)	(0.48)	(0.17)
Tenure	-0.014	0.000	-0.008	0.001
	(-0.74)	(0.02)	(-0.45)	(0.04)
Age	0.136	0.075	0.118	0.078
	(0.68)	(0.35)	(0.68)	(0.42)
Gender	0.095	0.095	0.118	0.131**
	(1.07)	(1.27)	(1.45)	(1.99)
Constant	0.370	0.686	0.330	0.542
	(0.44)	(0.75)	(0.45)	(0.68)
Firm FE	YES	YES	YES	YES
Year FE	YES	NO	YES	NO
Ind-Year FE	NO	YES	NO	YES
Observations	1,902	1,840	2,196	2,141
Adj. R-squared	0.204	0.189	0.199	0.195

Panel B: 10% as Thresholds for Relative Deal Size

Dep. Var.	Large		Fraction of Large Deals	
	(1)	(2)	(3)	(4)
High×Post	**-0.107****	**-0.131****	**-0.079***	**-0.112****
	(-2.17)	**(-2.39)**	**(-1.80)**	**(-2.32)**
Size	-0.027	-0.034	-0.018	-0.026
	(-0.73)	(-0.80)	(-0.56)	(-0.72)
ROA	-0.165	0.033	-0.215	-0.064
	(-0.73)	(0.12)	(-1.08)	(-0.27)
Leverage	-0.169	-0.244	-0.194	-0.235
	(-1.15)	(-1.46)	(-1.46)	(-1.57)
Tobin's Q	0.045**	0.044**	0.050***	0.051***
	(2.46)	(2.13)	(3.01)	(2.80)
Cash_holding	-0.156	-0.159	-0.145	-0.169
	(-0.69)	(-0.69)	(-0.72)	(-0.80)
Cap	0.037	-0.379	0.023	-0.319
	(0.06)	(-0.44)	(0.04)	(-0.44)
PPE	0.061	0.289	0.031	0.139
	(0.26)	(0.97)	(0.20)	(0.80)
Duality	0.056	0.040	0.057*	0.043
	(1.56)	(0.92)	(1.70)	(1.13)
Tenure	-0.033*	-0.017	-0.031*	-0.017
	(-1.69)	(-0.83)	(-1.77)	(-0.91)
Age	0.310*	0.219	0.263	0.206
	(1.66)	(1.12)	(1.58)	(1.15)
Gender	0.007	0.024	0.046	0.084
	(0.09)	(0.29)	(0.58)	(1.10)
Constant	-0.391	-0.014	-0.338	-0.093
	(-0.50)	(-0.02)	(-0.48)	(-0.12)
Firm FE	YES	YES	YES	YES
Year FE	YES	NO	YES	NO
Ind-Year FE	NO	YES	NO	YES
Observations	1,930	1,869	2,196	2,141
Adj. R-squared	0.290	0.276	0.277	0.271

Table 6

The Effect of Pay Ratio Disclosure on Pay Sensitivity and M&A Activity: Placebo Tests

This table presents placebo tests for the analysis on the effect of Pay Ratio Disclosure Reform on CEOs' pay sensitivity and M&A decisions using pseudo treatment time. In panel A, we re-estimate Equation (2) and (3), with 2014 as the pseudo event year. The years 2011, 2012 and 2013 are defined as the pre-period, while the years 2015, 2016, and 2017 are defined as the post-period. High and low pay ratio firms are the same firms as in our current sample (as revealed in 2018). In panel B, we re-estimate Equation (5) and (6), with 2014 as the pseudo event year. The independent variable is *High×Post*, a dummy variable equal to one for firm-year combinations of high pay-ratio firms after 2014, and zero otherwise. Firm-level characteristics and CEO characteristics are included as control variables. Firm and year or industry-year fixed effects are included in all columns. T-statistics based on standard errors clustered by firm are reported in brackets. *, **, and *** denote statistical significance at 10%, 5%, and 1% level, respectively.

Panel A: Placebo Tests for Pay-Size Sensitivity

Dep. Var.	Δ Ln (CEO Pay)					
	Full Sample	High Ratio	Low Ratio	Full Sample	High Ratio	Low Ratio
	(1)	(2)	(3)	(4)	(5)	(6)
ΔSize × Post	**-0.140**	**-0.168**	**-0.130**	**-0.139**	**-0.189**	**-0.135**
	(-1.42)	**(-1.13)**	**(-0.98)**	**(-1.40)**	**(-1.24)**	**(-1.00)**
ΔSize	**0.234*****	**0.337*****	**0.141**	**0.230*****	**0.364*****	**0.128**
	(2.65)	**(2.70)**	**(1.15)**	**(2.59)**	**(2.85)**	**(1.02)**
Controls	YES	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	NO	NO	NO
Ind-Year FE	NO	NO	NO	YES	YES	YES
Observations	7,648	3,862	3,786	7,638	3,852	3,779
Adj R-squared	0.014	0.015	0.013	0.015	0.015	0.013

Panel B: Placebo Tests for Pay-Performance Sensitivity

Dep. Var.	Δ Ln (CEO Pay)					
	Full Sample	High Ratio	Low Ratio	Full Sample	High Ratio	Low Ratio
	(1)	(2)	(3)	(4)	(5)	(6)
Positive×Post	**-0.002**	**-0.077**	**0.054**	**-0.044**	**-0.125**	**0.008**
	(-0.02)	**(-0.74)**	**(0.45)**	**(-0.50)**	**(-1.12)**	**(0.07)**
Positive	**0.279*****	**0.361*****	**0.216*****	**0.311*****	**0.372*****	**0.261*****
	(4.61)	**(3.95)**	**(2.72)**	**(4.80)**	**(3.85)**	**(3.17)**
Negative×Post	**0.287**	**0.802****	**-0.157**	**0.376**	**0.836****	**-0.003**
	(1.08)	**(2.00)**	**(-0.46)**	**(1.39)**	**(2.01)**	**(-0.01)**
Negative	**-0.030**	**-0.412**	**0.310**	**-0.028**	**-0.410**	**0.300**
	(-0.13)	**(-0.92)**	**(1.49)**	**(-0.12)**	**(-0.93)**	**(1.36)**
Controls	YES	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	NO	NO	NO
Ind-Year FE	NO	NO	NO	YES	YES	YES
Observations	7,648	3,862	3,786	7,638	3,852	3,779
Adj. R-squared	0.013	0.015	0.012	0.013	0.012	0.013

Panel C: Placebo Tests for CEOs' Decisions to Acquire

Dep. Var.	Large		Fraction of Large Deals	
	(1)	(2)	(3)	(4)
High×Post	**-0.027**	**-0.020**	**-0.035**	**-0.033**
	(-0.38)	**(-0.26)**	**(-0.61)**	**(-0.54)**
Controls	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES
Year FE	YES	NO	YES	NO
Ind-Year FE	NO	YES	NO	YES
Observations	977	937	1,188	1,146
Adj. R-squared	0.247	0.223	0.233	0.221

Table 7
The Effect of Pay Ratio Disclosure on Acquisition Performance

This table reports the effect of Pay Ratio Disclosure Reform on announcement period abnormal returns. We use trading days 150 through 50 relative to the event date as the estimation period (at least 70 non-missing daily returns) for each transaction to estimate the expected return. The difference between the actual daily return and market model predicted daily return is the daily abnormal return. We cumulate the daily abnormal returns over the event window. The independent variable is *High×Post,* a dummy variable equal to one for firm-year combinations of high pay-ratio firms after the adoption of the Pay Ratio Disclosure Mandate, and zero otherwise. Firm and deal characteristics are included as control variables. Firm and industry-year fixed effects are included in all models. T-statistics based on standard errors clustered by firm are reported in brackets. *, **, and *** denote statistical significance at 10%, 5%, and 1% level.

Dep. Var.	CAR [-1,1]	CAR [-2,2]	CAR [-3,3]	CAR [-5,5]
	(1)	(2)	(3)	(4)
High×Post	**0.001**	**0.001**	**-0.002**	**-0.007**
	(0.15)	**(0.15)**	**(-0.20)**	**(-0.81)**
Size	-0.018***	-0.019***	-0.020***	-0.021***
	(-2.74)	(-2.72)	(-2.69)	(-2.70)
Leverage	0.002	-0.000	0.004	0.009
	(0.09)	(-0.00)	(0.13)	(0.28)
Tobin's Q	-0.004	-0.006*	-0.007**	-0.010**
	(-1.28)	(-1.92)	(-2.03)	(-2.55)
Cash_holding	-0.005	-0.026	-0.027	-0.043
	(-0.14)	(-0.74)	(-0.69)	(-0.98)
ROA	-0.059	-0.057	-0.040	-0.025
	(-1.25)	(-1.09)	(-0.71)	(-0.39)
Cap	-0.159*	-0.089	-0.073	0.001
	(-1.87)	(-1.16)	(-0.83)	(0.01)
PPE	0.020	0.008	0.004	-0.016
	(0.94)	(0.36)	(0.15)	(-0.63)
Cross_border	-0.006**	-0.005	-0.006	-0.007*
	(-2.00)	(-1.45)	(-1.49)	(-1.66)
Deal_size	0.004	0.001	-0.000	0.006
	(0.21)	(0.05)	(-0.02)	(0.24)
Diversify	-0.005	-0.004	-0.005	-0.006
	(-1.53)	(-1.21)	(-1.34)	(-1.51)
Cash	0.006**	0.007**	0.008**	0.010***
	(2.28)	(2.37)	(2.33)	(2.70)
Public	-0.023***	-0.020***	-0.020***	-0.025***
	(-5.72)	(-4.44)	(-3.96)	(-4.40)
Length	0.002***	0.001*	0.001	0.001
	(2.84)	(1.77)	(1.35)	(0.72)
Constant	0.167***	0.180***	0.193***	0.210***
	(3.16)	(3.26)	(3.18)	(3.27)
Firm FE	YES	YES	YES	YES
Ind-Year FE	YES	YES	YES	YES
Observations	3,304	3,304	3,304	3,304
Adj. R-squared	0.170	0.137	0.119	0.118

Table 8

The Effect of Pay Ratio Disclosure on Acquisition Performance: Large vs Small Deals

This table reports the effect of Pay Ratio Disclosure Reform on announcement period abnormal returns for large deals and small deals. Large deals are defined as deals that satisfy either of the two conditions: (1) deal value is higher than the median value in the same year (2) transaction value exceeds 5% (column 1 and 2) or 10% (column 3 and 4) of the acquirers's market capitalization; otherwise, the deals are classified as small deals. The independent variable is *High×Post,* a dummy variable equal to one for firm-year combinations of high pay-ratio firms after the adoption of the Pay Ratio Disclosure Mandate, and zero otherwise. Firm-level characteristics and deal characteristics are included as control variables. Firm and industry-year fixed effects are included in all models. T-statistics based on standard errors clustered by firm are reported in brackets. *, **, and *** denote statistical significance at 10%, 5%, and 1% level.

Dep.Var: CAR[-1,1]	Small Deals (1)	Large Deals (2)	Small Deals (3)	Large Deals (4)
High×Post	**-0.010***	**0.017***	**-0.017****	**0.029****
	(-1.82)	**(1.66)**	**(-2.02)**	**(2.56)**
Size	-0.006	-0.026***	-0.007	-0.029***
	(-1.37)	(-2.93)	(-1.44)	(-3.01)
Leverage	-0.012	0.004	-0.004	0.022
	(-0.62)	(0.09)	(-0.18)	(0.51)
Tobin's Q	-0.002	-0.002	-0.002	-0.001
	(-0.60)	(-0.37)	(-0.76)	(-0.16)
Cash_holding	-0.012	0.009	-0.010	0.018
	(-0.50)	(0.19)	(-0.32)	(0.31)
ROA	0.041	-0.118*	0.004	-0.062
	(0.95)	(-1.90)	(0.10)	(-0.97)
Cap	-0.034	-0.346***	-0.023	-0.367***
	(-0.69)	(-3.65)	(-0.40)	(-3.64)
PPE	0.012	0.015	0.016	0.002
	(0.82)	(0.37)	(0.90)	(0.05)
Cross_border	-0.004	-0.007*	-0.006	-0.008*
	(-1.14)	(-1.67)	(-1.46)	(-1.70)
Deal_size	0.180	-0.005	0.005	-0.005
	(1.32)	(-0.19)	(0.05)	(-0.19)
Diversify	0.001	-0.008*	-0.001	-0.011**
	(0.32)	(-1.78)	(-0.31)	(-2.20)
Cash	-0.002	0.009**	-0.003	0.012***
	(-0.72)	(2.42)	(-1.06)	(2.82)
Public	-0.002	-0.028***	-0.007	-0.027***
	(-0.30)	(-5.96)	(-1.16)	(-5.22)
Length	0.001	0.002	0.002**	0.001
	(1.58)	(1.62)	(2.54)	(0.51)
Constant	0.055	0.245***	0.066*	0.271***
	(1.54)	(3.17)	(1.75)	(3.07)
Firm FE	YES	YES	YES	YES
Ind-Year FE	YES	YES	YES	YES
Observations	1,140	1,826	1,383	1,580
Adj. R-squared	0.236	0.218	0.199	0.243

Table 9

The Effect of Pay Ratio Disclosure on Acquisition Performance: Public vs Non-Public Targets

This table reports the treatment effect of Pay Ratio Disclosure Reform on announcement period abnormal returns for public and non-pubic target deals. We compute cumulative abnormal returns for different event windows as in the previous table. The independent variable is *High×Post* which is a dummy variable equal to one for firm-year combinations of high pay-ratio firms after the adoption of the Pay Ratio Disclosure Mandate, and zero otherwise. Firm-level characteristics and deal characteristics are included as control variables. Firm and year fixed effects are included in all models. T-statistics based on standard errors clustered by firm are reported in brackets. *, **, and *** denote statistical significance at 10%, 5%, and 1% level.

	Public Targets			Non-Public Targets		
CAR	[-1,1]	[-2,2]	[-5,5]	[-1,1]	[-2,2]	[-5,5]
	(1)	(2)	(4)	(5)	(6)	(8)
High×Post	**0.018***	**0.025****	**0.050*****	**-0.006**	**-0.010**	**-0.019****
	(1.70)	**(2.06)**	**(3.14)**	**(-1.12)**	**(-1.63)**	**(-2.54)**
Size	0.016*	0.015	0.010	-0.015***	-0.018***	-0.018**
	(1.83)	(1.32)	(0.85)	(-2.65)	(-3.05)	(-2.29)
Leverage	0.067	0.071	-0.038	0.008	-0.003	-0.008
	(1.37)	(1.08)	(-0.40)	(0.33)	(-0.09)	(-0.22)
Tobin's Q	0.002	-0.003	-0.003	-0.002	-0.004	-0.008**
	(0.28)	(-0.32)	(-0.28)	(-0.73)	(-1.22)	(-1.96)
Cash_holding	0.027	-0.055	-0.123	0.029	0.004	-0.032
	(0.50)	(-0.76)	(-1.22)	(0.81)	(0.10)	(-0.64)
ROA	-0.207**	-0.235*	-0.450**	-0.004	-0.011	0.023
	(-1.98)	(-1.81)	(-2.45)	(-0.09)	(-0.22)	(0.39)
Cap	-0.548***	-0.319	-0.486**	-0.068	-0.048	-0.034
	(-3.59)	(-1.56)	(-2.40)	(-0.72)	(-0.48)	(-0.25)
PPE	0.186**	0.170	0.395***	0.011	0.014	0.005
	(2.07)	(1.31)	(2.65)	(0.46)	(0.54)	(0.16)
Cross_border	-0.017	-0.023	-0.022	-0.005*	-0.004	-0.006
	(-1.04)	(-1.43)	(-1.02)	(-1.65)	(-1.15)	(-1.14)
Deal_size	-0.041***	-0.037*	-0.025	0.031	0.019	0.026
	(-2.68)	(-1.93)	(-0.94)	(0.90)	(0.52)	(0.70)
Diversify	0.003	0.008	0.007	-0.006**	-0.006*	-0.008*
	(0.31)	(0.83)	(0.53)	(-2.07)	(-1.90)	(-1.90)
Cash	0.030***	0.031***	0.045***	0.003	0.004	0.008*
	(3.92)	(3.77)	(4.20)	(1.11)	(1.42)	(1.92)
Length	-0.003	-0.002	-0.012	0.002**	0.001	0.001
	(-0.43)	(-0.25)	(-0.89)	(2.35)	(1.51)	(1.07)
Constant	-0.186*	-0.166	-0.078	0.128***	0.167***	0.174***
	(-1.81)	(-1.24)	(-0.56)	(2.95)	(3.59)	(2.82)
Firm FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Observations	332	332	332	2,810	2,810	2,810
Adj. R-squared	0.444	0.399	0.383	0.129	0.103	0.088

Table 10
The Effect of Pay Ratio Disclosure on Post-M&A CEO Pay Change

This table reports the treatment effect of Pay Ratio Disclosure Reform on change in CEO pay following M&A transactions. The dependent variables are changes in CEO pay around acquisitions from year *ayr-1* to year *cyr+1*, where *ayr* is the merger announcement year and *cyr* is the merger completion year. The independent variable is *High×Post*, a dummy variable equal to one for firm-year combinations of high pay-ratio firms after the adoption of the Pay Ratio Disclosure Mandate, and zero otherwise. Firm-level characteristics and deal characteristics are included as control variables. Firm and industry-year fixed effects are included in all models. T-statistics based on standard errors clustered by firm are reported in brackets. *, **, and *** denote statistical significance at 10%, 5%, and 1% level, respectively.

Panel A: Large vs Small Deals

Dep. Var.	Δ CEO Pay		
	Full Sample	Large Deals	Small Deals
	(1)	(2)	(3)
High×Post	**-0.193**	**-0.028**	**-0.326***
	(-1.54)	**(-0.16)**	**(-1.77)**
Size	-0.383***	-0.240	-0.383*
	(-3.28)	(-1.42)	(-1.94)
Leverage	0.234	0.145	0.149
	(0.53)	(0.23)	(0.16)
Tobin's Q	-0.049	-0.075	-0.100
	(-0.70)	(-0.62)	(-1.06)
Cash_holding	-0.131	-0.315	1.333
	(-0.23)	(-0.58)	(1.64)
ROA	-0.644	-0.989	-0.084
	(-0.74)	(-1.43)	(-0.04)
Cross_border	0.040	0.020	-0.026
	(0.67)	(0.24)	(-0.34)
Deal_size	-0.009	0.175	-0.962
	(-0.04)	(0.57)	(-0.77)
Diversify	0.043	0.016	0.011
	(0.87)	(0.22)	(0.20)
Cash	0.002	0.043	-0.008
	(0.03)	(0.73)	(-0.11)
Public	-0.021	-0.040	0.027
	(-0.33)	(-0.63)	(0.18)
Length	-0.008	0.031	0.003
	(-0.55)	(1.53)	(0.15)
Constant	3.649***	2.489	3.373**
	(3.59)	(1.56)	(2.47)
Firm FE	YES	YES	YES
Ind-Year FE	YES	YES	YES
Observations	2,277	1,068	884
Adj. R-squared	0.332	0.365	0.656

Panel B: Public vs Non-Public Target Deals

Dep. Var.	ΔCEO Pay		
	Full Sample	Public Target	Non-Public Target
	(1)	(2)	(3)
High×Post	**-0.295****	**-0.131**	**-0.342****
	(-2.35)	**(-0.44)**	**(-2.48)**
Controls	YES	YES	YES
Firm FE	YES	YES	YES
Ind-Year FE	YES	YES	YES
Observations	2,743	193	2,364
Adj R-squared	0.323	0.278	0.361

Appendix A
Variable Definitions

Variables	Definitions	Source
Panel A: Firm-Level Variables		
High	A dummy variable equal to 1 if pay ratio of the firm is higher than sample median ratio in 2017.	The University of Alabama Libraries
Post	A time dummy variable equal to 1 if year t is after 2017.	
Size	The natural logarithm of total assets or total sales.	Compustat
ROA	Net income (*ni*) scaled by total assets (*at*).	Compustat
Leverage	Long term debt (*dltt*) plus debt in current liabilities (*dlc*), divided by total assets.	Compustat
Tobin's Q	Market value (*prcc_f*csho+at-ceq-txdb*) divided by total assets.	Compustat
Cap	Capital expenditures (*capx*) scaled by total assets.	Compustat
PPE	Net property, plant, and equipment (*ppent*) scaled by total assets.	Compustat
Cash_holding	Cash and short-term investments (*che*) scaled by total assets.	Compustat
Ret	Annual stock return computed by monthly return.	CRSP
Sigma	Annual stock volatility computed by monthly return.	CRSP
Panel B: CEO Characteristics		
Age	The natural logarithm of CEO age.	Execucomp
Gender	A dummy variable equal to 1 if the CEO is male, otherwise 0.	Execucomp
Tenure	The natural logarithm of years serving as a CEO in the firm plus1.	Execucomp
Duality	A dummy variable equal to 1 if a CEO also serves as chairman of the board.	Execucomp
Ln (TDC1)	The natural logarithm of CEO pay ($000s), measured by *TDC1* in ExecuComp. Total compensation comprised of the following: Salary, Bonus, Other Annual, Total Value of Restricted Stock Granted, Total Value of Stock Options Granted (using Black Scholes), Long-Term Incentive Payouts, and All Other Total.	Execucomp
Ln (Salary)	The natural logarithm of CEO salary, $000s.	Execucomp
Ln (Cash Bonus)	The natural logarithm of CEO cash bonus, measured by the sum of nonequity incentive pay and bonus, $000s.	Execucomp
Ln (Equity)	The natural logarithm of CEO equity-based pay, measured by the sum of stock and option pay, $000s.	Execucomp
Ln (Stock)	The natural logarithm of CEO stock pay, $000s.	Execucomp
Ln (Option)	The natural logarithm of CEO option pay, $000s.	Execucomp

Cash Bonus Indicator	An indicator equal to one if CEO receives nonequity incentive pay or bonus during a given year.	Execucomp
Equity Pay Indicator	An indicator equal to one if CEO receives stock or option pay during a given year.	Execucomp
Stock Pay Indicator	An indicator equal to one if CEO receives stock pay during a given year.	Execucomp
Option Pay Indicator	An indicator equal to one if CEO receives option pay during a given year.	Execucomp
Panel C: Deal Characteristics		
Large	A dummy variable equal to 1 if the firm has at least one large deal but no small deal in a year, equal to 0 if the firm has at least one small deal but no large deal in a year.	SDC Database
Fraction of Large Deals	The proportion of large deals for a firm in a year, which is missing if there is no deal in a year.	SDC Database
CAR	The cumulative abnormal return around M&A announcement date.	CRSP
Deal_size	The transaction value divided by the acquirer's market capitalization (*prcc_f*csho*).	SDC Database, Compustat
Diversify	A dummy variable equal to 1 if the acquirer doesn't share the same 2-digit SIC codes with the target, otherwise 0.	SDC Database
Cross_border	A dummy variable equal to 1 if the acquirer and the acquiree are in different countries, otherwise 0.	SDC Database
Cash	A dummy variable equal to 1 if the deal is full cash payment deal, otherwise 0.	SDC Database
Public	A dummy variable equal to 1 if the deal involves public target, otherwise 0.	SDC Database
Length	The natural logarithm of time interval from announcement date to effective (completion) date plus 1.	SDC Database
Shares_owned	The percentage of shares owned by acquirer after the transaction	SDC Database
ΔCEO Pay	CEO pay in year cyr+1 minus CEO pay in year ayr-1, scaled by CEO pay in year ayr-1, where ayr is the merger announcement year and cyr is the merger completion year.	SDC Database and Execucomp

Appendix B: Additional Empirical Results

Table B1

Univariate Analysis on CEO Delta and Alignment before and after Pay Ratio Disclosure Mandate

Panel A (B) reports the univariate comparisons on CEO Delta (Alignment) before and after the Pay Ratio Disclosure Mandate for high pay-ratio firms and low pay-ratio firms, respectively. Delta is a CEO's stock and option value sensitivities to a 1% change in stock price. Alignment is a CEO's stock and option value sensitivities to a $100 change in shareholder wealth.

Panel A. Delta ($1000)

	High Ratio	Low Ratio
	(1)	(2)
Before 2018	1250.03	608.96
After 2018	950.19	1166.85
After-Before Difference	-299.84**	557.89
(p-value)	(0.04)	(0.85)

Panel B: Alignment ($)

	High Ratio	Low Ratio
	(1)	(2)
Before 2018	2.21	2.99
After 2018	1.59	2.60
After-Before Difference	-0.63***	-0.39
(p-value)	(0.00)	(0.23)

Table B2
The Effect of Pay Ratio Disclosure on CEO Delta and Alignment

This table reports the treatment effect of Pay Ratio Disclosure Mandate on CEO Delta and Alignment. The dependent variable in column (1) is *CEO Delta*, defined as dollar change in the executive's wealth for a 1% change in stock price. The dependent variable in column (2) is *CEO Alignment*, defined as dollar change in the executive's wealth for $100 change in shareholder wealth. The difference-in-differences estimator is captured by the interaction between an indicator variable, *High*, set equal to one for firms with pay ratio higher than sample median in 2017, and an indicator variable, *Post*, set to one for fiscal years from 2018 to 2022. One-year lagged firm and CEO characteristics are included as control variables. Firm and year fixed effects are included in all models. The model is estimated using Poisson regressions. T-statistics based on standard errors clustered by firm are reported in brackets. *, **, and *** denote statistical significance at 10%, 5%, and 1% level, respectively.

Dep. Var.	Pay-Performance Sensitivity	
	Delta ($1000)	Alignment ($)
	(1)	(2)
High×Post	**-0.456****	**-0.265***
	(-2.14)	**(-1.85)**
Ret	0.206***	-0.128
	(2.87)	(-1.19)
Sigma	2.041*	4.889*
	(1.74)	(1.86)
Size	0.476***	-0.416***
	(2.80)	(-4.18)
ROA	1.287***	0.236
	(3.28)	(0.63)
Leverage	1.148*	1.477**
	(1.75)	(2.09)
Tobin's Q	-0.018	0.009
	(-0.26)	(0.37)
Duality	-0.520*	0.694***
	(-1.86)	(3.84)
Age	1.797**	1.112
	(2.39)	(1.43)
Gender	-0.155	0.319
	(-0.70)	(1.21)
Tenure	0.464***	0.149
	(4.23)	(0.93)
Constant	-3.632	-1.080
	(-1.01)	(-0.36)
Firm FE	YES	YES
Year FE	YES	YES
Observations	12,211	12,299
Pseudo. R-squared	0.892	0.705

Table B3
The Effect of Pay Ratio Disclosure on M&A Payment Method

This table presents firm-level DiD regressions on the number of acquisitions with stock payment from 2012 to 2022. We require deals where the percentage of stock payment in the whole payment package is greater than 0 and then count the number of such deals. The dependent variables in column (1) and (2) are the number of M&A deals with stock payment in each year. Results for log-transformation are shown in column (3) and (4). The independent variable is *High×Post*, a dummy variable equal to one for firm-year combinations of high pay-ratio firms after the adoption of Pay Ratio Disclosure Mandate, and zero otherwise. Firm-level and CEO characteristics are included as control variables. Firm and year or industry-year fixed effects are included in all columns. T-statistics based on standard errors clustered by firm are reported in brackets. *, **, and *** denote statistical significance at 10%, 5%, and 1% level, respectively.

Dep. Var.	# of Deals with Stock Payment		Ln (1+# of Deals with Stock Payment)	
	(1)	(2)	(3)	(4)
High×Post	**0.016***	**0.017***	**0.009***	**0.010***
	(1.90)	**(1.91)**	**(1.74)**	**(1.74)**
Size	-0.048***	-0.045***	-0.031***	-0.030***
	(-5.15)	(-4.57)	(-5.50)	(-5.11)
ROA	0.097***	0.124***	0.064***	0.084***
	(2.65)	(3.47)	(2.66)	(3.51)
Leverage	-0.027	-0.035	-0.016	-0.021
	(-1.10)	(-1.43)	(-1.05)	(-1.36)
Tobin's Q	0.004	0.003	0.003	0.002
	(1.35)	(1.10)	(1.39)	(1.11)
Cash_holding	0.052	0.051	0.035	0.034
	(1.27)	(1.18)	(1.35)	(1.28)
Cap	-0.277**	-0.221*	-0.172**	-0.136
	(-2.23)	(-1.72)	(-2.16)	(-1.63)
PPE	0.180***	0.190***	0.121***	0.128***
	(3.30)	(3.15)	(3.34)	(3.21)
Duality	0.013	0.015	0.009*	0.010*
	(1.35)	(1.54)	(1.65)	(1.80)
Tenure	-0.000	-0.001	0.000	-0.000
	(-0.03)	(-0.24)	(0.09)	(-0.08)
Age	-0.079**	-0.074**	-0.053**	-0.050**
	(-2.39)	(-2.24)	(-2.39)	(-2.25)
Gender	-0.002	-0.006	-0.001	-0.003
	(-0.22)	(-0.50)	(-0.19)	(-0.42)
Constant	0.720***	0.682***	0.475***	0.453***
	(4.84)	(4.56)	(4.89)	(4.69)
Firm FE	YES	YES	YES	YES
Year FE	YES	NO	YES	NO
Industry-Year FE	NO	YES	NO	YES
Observations	12,333	12,322	12,333	12,322
Adj. R-squared	0.158	0.151	0.152	0.145