Why Do Some Public Firms Forgo Equity-Based CEO Compensation?

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Abstract

Equity-based pay, a defining feature of executive compensation at public firms, is entirely absent, on average, from about one in eight CEO compensation packages at large U.S. public firms between 1998 and 2022, with over 50% of these firms having forgone CEO equity compensation at least once. This zero-equity pay (ZEP) phenomenon cannot be explained by factors such as family firms avoiding ownership dilution, CEOs with high ownership stakes, or compensation designs that create periodic gaps in equity grants. Further complicating matters, ZEP observations frequently occur in firms where equity incentives would seem more crucial, such as younger, smaller, and riskier firms. Supporting the role of investor attention in granting equity-based pay, we find that firm-years with higher institutional ownership, S&P 1500 inclusion, recent low support in Say-on-Pay votes, greater CEO pay news coverage, and higher analyst following are less likely to forgo equity-based CEO pay. In ZEP years, CEOs receive lower total compensation but higher salaries and cash-based incentives. Remarkably, operating performance and pay-for-performance sensitivity in ZEP years are largely comparable to those in years with equity awards. Our findings suggest that, for some firms, equity-based compensation may not be essential for aligning executive incentives with firm performance.

JEL Classification: M12; J33; G32; M52; G30

Keywords: Executive compensation design, zero-equity pay, performance incentives, incentive alignment, shareholder attention, public attention

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1. Introduction

In their two seminal 1990 articles, Jensen and Murphy highlighted the lack of pay-for-performance incentives in U.S. public firms prior to the 1990s and attributed the issue primarily to executives' minimum ownership stakes in their firms (Jensen and Murphy, 1990a and 1990b). Their research underscored the importance of equity-based pay in aligning executive incentives with shareholder interests, which set the stage for a transformative shift in executive pay design.[1] Since then, the use of equity compensation has exploded, taking the form of stock option grants in the 1990s and evolving into performance-based stock awards in the late 2000s. Over the years, equity-based compensation has become a defining feature of executive pay design in public firms.

Despite the dominance of equity pay in both its prevalence and magnitude, more than 30 years later, a significant portion of firms have had years in which they did not grant equity compensation to their CEOs. A third of large U.S. public firms have, at least once since 2006, forgone paying their CEOs equity compensation in a given year. The majority of these firms have skipped CEO equity pay for three or more consecutive years. Over the 25-year period in our sample of large U.S. public firms, the annual percentage of firm-year observations with no CEO equity compensation ranges from 6.3% to 21.4%, with an average of 13.2%. When we expand the sample to include smaller public firms, the average increases to more than 15.4%.

Motivated by these observations, we present the first comprehensive set of descriptive

[1] Murphy (2013) summarizes a few regulatory factors that have also contributed to the rise of option-based pay (favorable accounting expensing rules), and the shift from option grants to performance shares (option back dating scandals and compensation disclosure rule changes). Although the form of equity-based pay may have evolved over the past decades, the prominence of equity-based pay has remained unchanged.

statistics on the significance and persistence of the "zero-equity-pay (ZEP)" phenomenon for U.S. public firms. We draw on executive compensation theories to explore why, in some firm-years, CEOs receive no equity compensation. Our findings point to the role of public attention in shaping such decisions and reveal a robust pay-for-performance relation among ZEP firm-years, indicating that equity incentives may not be essential for all firms or in every period.

One naïve explanation for the ZEP phenomenon is that firms do not want to dilute the existing shareholders' ownership in the company. Such concern can be especially relevant in firms with founding family presence that enjoy private benefits of control (e.g., Demsetz and Lehn, 1985; Burkart et al., 2003; Villalonga and Amit, 2006; Basu et al., 2009). Contrary to this view, however, we continue to find that, 8.48% of firm-year observations lack equity-based pay for CEOs, after excluding family firms from our analysis.

One could also argue that firms may not need to provide equity compensation to the CEO if they already hold a significant ownership stake in the firm. About 17% of firm-year observations in our sample involve CEOs who own more than 1% of their company's equity. Removing these observations does not materially change the presence of ZEP – 10.64% of firm-years still lack equity-based CEO compensation.

ZEP observations do not appear to be limited to certain industries. In every industry, at least 7% of firms do not grant equity pay to their CEOs, with the percentage varying from 7.2% to 17.03% across industries. Notably, ZEP observations are less common in production-oriented industries, such as manufacturing, energy, and chemicals, than in service- or consumer-oriented industries, such as consumer nondurables and durables, business equipment, trade, and finance.

So why do some firms forgo equity compensation for their CEOs? We draw on theories explaining the use of equity pay to identify potential determinants of zero-equity pay. Equity pay has long been seen as an effective incentive tool to mitigate the classic shareholder-manager agency problems by aligning CEOs' incentives with shareholder value and providing incentives for CEOs to deliver better performance (e.g., Jensen and Meckling, 1976; Holmstrom, 1979). However, equity-based pay can be costly due to its risky nature, which can lead to a higher pay premium compared to fixed cash compensation. It also comes with the potential costs of stock overvaluation and distortion of managerial incentives (e.g., Burns and Kedia, 2006; Bergstresser and Philippon, 2006; Efendi, Srivastava, and Swanson, 2007; Johnson et al., 2009; Armstrong et al., 2013; Edmans and Gabaix, 2016). Motivated by these arguments, we expect that firm-years in which equity pay is more beneficial, such as those following poor performance, will be less likely to become ZEP. Moreover, firms with better profitability are likely to be less cash constrained to award cash compensation, further reducing their reliance on equity-based incentives. Contrary to these predictions, we find no significant relation between firm performance and the likelihood of a ZEP observation, regardless of whether we measure performance by accounting metrics, stock returns, or revenue growth.

Relatedly, equity compensation could encourage risk-averse managers to be more risk-taking (Jensen and Meckling, 1976; Hall and Murphy, 2002). Such an incentive could be more important when risk-taking is more essential for firm value and growth. Supporting this view, we find that firm-year observations with riskier investments, such as higher R&D, are less likely to be ZEP. Not consistent with this view, however, ZEP is more likely

to occur in firm-years when the firm is smaller and younger.

Incentive contracting theories also suggest that firms should use compensation measures that are more reflective of executive efforts (Holmstrom, 1979; Murphy, 1985). We thus expect equity-based pay to be used less when the firm's stock price is less informative. Supporting this argument, we find that ZEP observations are more likely among firm-years with more volatile stock returns. However, we also find that larger and more complex firms are less likely to forgo CEO equity pay, which contradicts the informativeness argument, as stock prices are generally expected to be less informative in these firms (e.g., Chen, Goldstein, and Jiang, 2007; Coles, Daniel, and Naveen, 2008).

Starks and Herztall (1999) find that institutional investors prefer equity compensation as it is perceived to better align executives' incentives with those of shareholders. Recent studies further show that firms are sensitive to public scrutiny and are willing to make changes to executive pay to avoid attracting negative public attention (e.g., Core, Guay, and Larcker, 2008; Kuhnen and Niessen, 2012; Edmans, Gosling, and Jenter, 2023). We thus expect that ZEP observations are less likely among firms subject to greater public scrutiny or shareholder monitoring. Our findings support this argument. Firms with higher institutional ownership and that are constituents of the S&P 1500 index are significantly less likely to have ZEP years. ZEP occurs in an average of 18.25% of firm-years outside the S&P 1500 sample, which is about 2.5 times the 7.66% rate observed in the S&P 1500 sample. Firms are also more likely to exhibit ZEP when their CEO pay receives less news coverage and the firm is followed by fewer analysts.

Given that equity compensation is conceptualized as a solution to agency problems (Jensen and Meckling, 1976; Holmstrom, 1979), it is logical to examine whether ZEP

observations are more or less common in firms with stronger corporate governance. Our results suggest that they are less common. Specifically, we find that firms with more independent boards and those with less powerful CEOs are less likely to have ZEP observations. Shareholder activism also appears to have a significant impact. A higher percentage of Say-on-Pay votes against executive compensation is associated with a significantly lower likelihood of forgoing CEO equity pay, especially when the firm has already forgone equity pay in the prior year**.**

Our findings are robust to various controls for industry, firm, and CEO characteristics and are not driven by high CEO ownership, family firms, or ZEP observations covered by prior compensation grants that might result in gaps in equity compensation. Moreover, the results become statistically stronger when we expand our sample to include all U.S. public firms. A significantly higher percentage of smaller firms have ZEP observations. The gap between the percentage of ZEP observations in the non-S&P 1500 sample and the S&P 1500 sample also widens to more than double of that observed in the smaller sample. These findings align with Cadman et al. (2010), which show that ExecuComp firms (consisting of S&P 1500 firms) and non-ExecuComp firms follow different compensation designs. These differences suggest that ZEP may be more prevalent than typically observed in commonly used compensation databases and reinforce the role of public attention in shaping firms' compensation decisions.

We next explore the relation between a firm's ZEP status and its compensation design. We first show that having a ZEP observation in one year significantly increases the chance of experiencing another ZEP observation in the following year. For example, firm-years with ZEP status have a 30% chance of being followed by another ZEP observation the next

year, compared to only 16% in a randomly simulated sample assuming no persistence. The difference becomes even wider when we examine longer periods: the likelihood of three consecutive ZEP observations is 15% in the actual data versus just 3% in the simulated sample, and the likelihood of four consecutive years of ZEP is 10% in the actual sample compared to less than 1% in the simulation. In the random sample, only about 0.1% of firms have five consecutive ZEP observations, while 7% of firms in our actual sample do.

When comparing compensation structure between firm-years with and without ZEP observations, we find that ZEP firm-years, on average, have significantly lower total CEO pay but higher salary, cash-based incentives, and other forms of compensation (such as perks and retirement benefits). The differences remain significant in a multivariate regression analysis that controls for various firm and CEO characteristics that could influence CEO compensation design.

Motivated by the significant differences in compensation design between firm-years with and without ZEP, we next examine whether these differing compensation designs are associated with variations in performance outcomes in these two groups of firms. Despite the absence of equity incentives, firms in ZEP years exhibit comparable accounting and stock performance three years after forgoing CEO equity pay. Moreover, being ZEP generally does not weaken the overall sensitivity of CEO pay to stock and accounting performance. This finding challenges the traditional view that equity compensation is necessary for aligning CEO incentives with firm performance, as some firm-years can provide performance incentives without it. If CEO compensation, including equity awards, is viewed as an ex-post reward rather than an ex-ante incentive mechanism, the observed similarity in pay-performance sensitivity between ZEP and non-ZEP firm-years is

unsurprising, as both equity and non-equity compensation serve as ex-post rewards for realized firm performance.

Our paper contributes to the literature on anomalous firm policies, such as the zero-leverage (e.g., Strebulaev and Yang, 2013), the disappearing dividend (Fama and French, 2001; DeAngelo, DeAngelo, and Skinner, 2004), the cash hoarding (e.g., Pinkowitz, Stulz, and Williamson, 2014, 2016), and the R&D underinvestment (e.g., Brown, Fazzari, and Petersen, 2009). Examining the motivation and implications of seemingly anomalous firm policies provides valuable insights into corporate decision-making and invites a reassessment of existing financial theories. By examining why some firms forgo CEO equity-based pay and the outcomes of such decisions, we offer an alternative perspective to the conventional wisdom that equity-based pay is essential for performance incentive alignment.

Our paper also contributes to the extensive literature on executive compensation design (see Murphy, 2013; and Edmans et al., 2017 for reviews). To our knowledge, we are the first to document the ZEP phenomenon in executive compensation. We show that both firm and CEO characteristics are associated with this pay design. More importantly, our findings highlight the role of shareholder scrutiny and public attention in shaping executive compensation design. Although existing studies in this area have reported mixed evidence (e.g., Core, Guay, and Larcker, 2008; Kuhnen and Niessen, 2012), our results echo recent survey evidence from Edmans et al. (2023), suggesting that firms adjust executive compensation to avoid negative public attention. Furthermore, the strong pay-for-performance sensitivity observed in ZEP firm-years suggests that firms can effectively design executive compensation to deliver performance incentives without relying on

equity-based pay.

2. Sample and variable construction

2.1. Sample

Our primary analysis focuses on firms in the Incentive Lab database from fiscal years 1998 to 2022. The database covers the largest 750 U.S. public firms by market capitalization each year, with back-filled and forward-filled data for each included firm. We obtain data on CEO equity compensation from the Plan-Based Award Tables from 2006 onward and from the Summary Compensation Tables for years prior to 2006. We gather firm characteristics and accounting variables from Compustat. Firms included in the sample must have data on market capitalization, operating income before depreciation, and total compensation, resulting in 31,479 firm-year observations across 2,320 firms.

Institutional holdings are obtained from SEC 13-F filings, while CEO ownership is calculated using insider data from Refinitiv. We collect board variables from the ISS Directors database. CEO characteristics are from Incentive Lab. We use BoardEx to fill in any missing information for board and CEO variables. We obtain data on Say-on-Pay (SOP) voting outcomes from the ISS Voting Analytics, available from 2011 onward. Lastly, data on historical S&P 1500 constituents are collected from the Bloomberg Terminal using the EQS function.

2.2. Identification of Zero-equity-pay (ZEP) observations

Firms began reporting the Plan-based Award Table in 2006. Therefore, for the Incentive Lab sample from 2006 to 2022, we classify firms as zero-equity-pay (ZEP) firms if no stock or option grants are recorded in the Plan-based Award Table for a given year. Firms typically structure their equity grant in three ways: (a) short-term grants, awarded

annually; (b) annual long-term overlapping grants; or (c) long-term non-overlapping grants every two or more years. Since non-overlapping grants can span multiple years, a firm may not issue a new grant when a prior equity grant remains active. We use grant horizon data from Incentive Lab to determine overlapping versus non-overlapping structures. We then define ZEP observation as firms in categories (a) or (b) but not in (c) – that fail to grant equity compensation in a given year, and create a subsample of ZEP firm-years not covered by prior equity grants.[2]

For the earlier years (1998 to 2005), when there were no Plan-Based Award Tables, we identify zero-equity-pay (ZEP) firms as those reporting no stock or option compensation in the Summary Compensation Table for a given year.[3] However, due to the unavailability of grant horizon information for these years, we cannot exclude firm-year observations covered by prior equity grants during this period. Therefore, in the robustness tests that exclude ZEP observations covered by a prior equity grant, the analysis is limited to from 2006 onward.[4]

2.3. CEO ownership and family firm indicators

Using the *Insider Filing - Table 1. Stock Transactions* table from Refinitiv, we construct total CEO holdings as the sum of the CEO's direct and indirect holdings in the quarter immediately prior to the beginning of the fiscal year. Indirect holdings include

[2] For firms issuing overlapping equity grants, each consecutive ZEP period (from the first ZEP year t to the last ZEP year y, where t=y if only one year) is identified as a valid ZEP if long-term equity grants occur either in both years before (t-1 and t-2) or both years after (y+1 and y+2). For non-consecutive ZEP occurrences, we apply this rule separately to each instance.

3 To mitigate the concern that missing plan-level data before 2006 might bias our classification for ZEP observations, we repeat all our analysis from Tables 3 to 7 for the post-2006 sample and find qualitatively similar results as reported in Table IA2.

[4] Axon granted its CEO a one-time, 10-year stock option award in 2018, referred to as "CEO Performance Award." This front-loaded grant is non-overlapping and is excluded from ZEP observations.

shares held by trusts, spouses, and children. We calculate CEO ownership % as total CEO holdings divided by the firm's total shares outstanding. We then use this variable to construct two binary variables, *CEO ownership <1%* and *CEO ownership < 5%*, to indicate whether CEO ownership is below one percent and five percent, respectively. These indicators allow us to easily exclude firms with higher CEO ownership. Focusing on firms with a relatively lower CEO ownership helps us mitigate the concern that our results are driven by CEOs with high equity ownership that can reduce the need for granting equity compensation.

We construct a family firm indicator from several sources to control for founding family influence and exclude family firms when necessary. Our first source is the family firm data collected by Anderson, Duru, and Reeb (2009) and Anderson, Reeb, and Zhao (2012). We obtain family firm information for the period 2001 to 2010 from Professor Reeb's website.[5] The data cover the largest 2,000 firms by total assets as of 2001 and include a *Family firm* indicator, which equals one if the founding family holds an ownership stake of 5% or more and zero otherwise. The second source contains family firm status information for IPO firms from the years 1993, 1997, 2001, and 2005, as well as their subsequent family ownership status through 2022 (Li and Ryan, 2022).[6]

Next, we merge this data with our sample of firms and apply a forward- and backward-filling approach to extend the family firm indicator. For firms identified as family firms in 2001, we backfill the classification to 1998-2000, as it is rare for firms to transition out of family control and then regain it. Similarly, for firms classified as non-family firms in 2010, we forward-fill the classification to 2022 since family status rarely re-emerges once a

[5] https://www.davidreeb.net/cv--data.html.
[6] We thank Li and Ryan (2022) for generously sharing the data.

family exits. Lastly, for firms that went public after 2010, we determine family firm status based on whether the founder concurrently holds a top executive position, using executive title information obtained from Incentive Lab.

2.4. Other firm and CEO characteristics

The first group of firm-level variables pertains to firm performance, including ROA, annual stock return, and sales growth rate. We measure ROA as operating income before depreciation scaled by total assets, stock return is measured as the annual stock return compounded from CRSP daily stock return over the fiscal year, and sales growth rate is the change in net sales scaled by lagged net sales. All performance measures are calculated on an annual basis.

The second group of firm-level variables captures the riskiness of the firm operations and includes variables like R&D intensity, capital expenditures, leverage, and firm age. R&D intensity is measured as the ratio of research and development (R&D) expenses to total assets, set to zero when R&D expenses are missing. Capital expenditures are also scaled by total assets to control for firms' size effects on investment. Firm age is proxied by the number of years the firm has existed in the Compustat database. Book leverage is calculated as the sum of short-term and long-term debt divided by total assets.

The third group of firm-level variables focuses on stock price informativeness and includes variables such as stock return volatility and firm complexity proxied by firm size and the number of business segments. Daily stock return volatility is calculated as the standard deviation of CRSP daily stock returns over the fiscal year. We measure firm size as the natural logarithm of total assets. The number of business segments is determined by counting the unique business segments disclosed in the Compustat segment database.

The fourth set of firm-level variables includes institutional ownership and an indicator for the firm's inclusion in the S&P 1500 index. These variables reflect shareholder attention and, more generally, public attention to the firm. Institutional ownership is the total percentage of a firm's shares held by all institutional investors. We use historical constituent data to determine whether a firm is part of the S&P 1500 index in a given fiscal year.

The final set of variables includes measures to capture CEO power, including CEO tenure and CEO ownership. CEO tenure is measured as the natural logarithm of one plus the years the individual has served as the firm's CEO. CEO ownership represents the percentage of the firm's outstanding equity shares owned by the CEO at the end of the fiscal year. Appendix A lists all variable descriptions along with their corresponding data sources.

2.5. Descriptive statistics

In Table 1 Panel A, we present the descriptive statistics of firm, board, and CEO characteristics of our sample. All non-binary variables are winsorized at the 1 and 99th percentiles to mitigate the influence of outliers. About 13% of the firm-year observations do not pay any equity compensation, and 7.2% skip equity compensation for their CEOs for three or more consecutive years. Overall, 83% (93.8%) have CEO equity ownership of less than one (five) percent. Excluding CEOs who hold more than 1 % of the firm's equity reduces the ZEP rate to 10.7%, which suggests that higher CEO equity ownership explains only a small portion of ZEP observations.

Among the firm-year observations for which founding-family status can be identified, 16.1% are classified as family firms. Both the mean and median ROA are 0.111, and the

mean (median) annual stock return is 0.185 (0.123), reflecting a generally strong market performance over the sample period. Just over half of the sample firms (52%) are constituents of the S&P 1500. Because Incentive Lab primarily covers large public firms, the mean (median) total assets is $17.970 billion ($4.110 billion). Other firm characteristics align with those typically reported in the literature. For example, book leverage has a mean (median) of 0.271 (0.249) and the average (median) board size is 8.421 (9).

3. Zero-equity Pay Trends and Patterns

In this section, we analyze how ZEP observations have evolved over time, the prevalence and persistence of ZEP observations across firms, their distribution across industries, and their relationship with public attention.

3.1. ZEP trends over time

Figure 1 illustrates the annual percentage of firm-year observations in which CEOs received no equity compensation from 1998 to 2022. Before the SEC's 2006 mandate for comprehensive and standardized executive compensation disclosures, about 20% of firm-years in the full sample did not report equity compensation to their CEOs in the Summary Compensation Table. Following the 2006 regulatory changes, the annual percentage of ZEP firm-years drops to below 10%, with a more pronounced reduction in recent years.

One possible reason for ZEP occurrences is CEO equity ownership. When CEOs hold a significant equity stake in their firms, their interests are naturally aligned with shareholders, potentially reducing the need for additional equity-based incentives. Furthermore, CEOs with substantial ownership stakes may be more risk-averse, as their personal wealth is highly concentrated in one firm. As a result, they may prefer safer compensation packages with less equity-based compensation and more fixed salary or cash

bonuses.[7] The sub-sample of firm-year observations with CEO ownership below one percent follows a similar pattern as the full sample, with ZEP observations declining from 20.89% in 1998 to 5.96% in 2022. The consistent downward trend across both samples suggests a broader shift toward CEO equity-based compensation. Nevertheless, in the last five years of the sample period (2018–2022), a total of 14.04% of unique firms still forwent CEO equity pay for at least one year.

3.2. ZEP prevalence and persistence

Figure 2 shows the distribution of ZEP frequency across firms. The tallest bar on the left shows that approximately 45.6% of firms never skip CEO equity pay, implying that most sample firms have forgone CEO equity pay at least once. About 22% of firms forgo equity pay in just one year, while 10.5% do so in exactly two years. In total, more than 22% of firms have had three or more ZEP years, and 11.4% have five or more. Only 1.6% of firms have had 15 or more ZEP years. The patterns in Figure 2 suggest that although ZEP episodes are common, they do not reflect a long-term firm-specific policy; most firms adopt ZEP only sporadically over the sample period.

We next examine how persistent ZEP is once it is adopted. Following the approach in Strebulaev and Yang (2013) that analyzes the persistence of firms' zero-leverage policies, we define ZEP persistence as follows:

$$PerZEP_k = \left(\frac{1}{|A_k|}\right)\sum\nolimits_{i\in A_k} \frac{S_{i,k}^{PerZEP}}{S_{i,k}^{ZEP}}$$

where A_k is the set of firms with at least one sequence of k-year observations beginning

[7] In untabulated results, the average ZEP observation rate is 13.19% in the full sample and 10.66% among firm-years where CEO ownership is below one percent. This modest difference suggests that high CEO ownership is not the primary driver of ZEP observations.

with a ZEP year observation, for firm *i,* $S_{i,k}^{ZEP}$ denotes the number of *k*-year sequences that start with a ZEP year, and $S_{i,k}^{PerZEP}$ represents the number of those *k*-year sequences for firm *i* that continue as ZEP throughout. For example, if firm *i* has 25 consecutive observations with ZEP for the first 15 years and equity compensation thereafter, it has 15 sequences of 10 consecutive years beginning with a ZEP year observation (i.e., $S_{i,k}^{ZEP}$= 15). Because ZEP is maintained in six of these 15 sequences, then $S_{i,k}^{PerZEP}$ = 6, indicating a 40% likelihood that the ZEP policy will persist for a decade.

Table 2 shows that, once a firm records a ZEP year, the probability of remaining ZEP in the next year is about 30%. The likelihood that the ZEP status lasts for at least three, four, and size consecutive years is 15%, 10%, and 7%, respectively. To benchmark these results, we simulate 500 random samples by reshuffling equity compensation across firms in each year, preserving the annual sample size and distribution. In the random sample, ZEP firms have only a 16% chance of maintaining ZEP in the following year, as shown in Table 2 Column 3, compared to the 30% observed in actual firms. Over longer intervals, the persistence in the random sample approaches zero. The significant differences in persistence between actual and random samples support the notion that ZEP practices represent a deliberate choice rather than a random occurrence.

3.2 Industry distribution of ZEP observations

We examine whether the occurrence of ZEP varies systematically by industry. Figure 3 reports the percentage of firm-year ZEP observations across sectors. ZEP observations are present across all industries, with the highest presence in the "Other" category[8]

[8] The 'other' category includes mines, construction, building materials, transportation, hotels, business services and entertainment.

(17.04%), followed by "Business equipment" (15.84%) and "Consumer nondurables" (15.75%). Notably, production-focused industries such as manufacturing, energy, and chemicals tend to have fewer ZEP observations compared to service- and consumer-focused industries, including consumer durables and nondurables, business equipment, trade, and finance. While industry variation exists, ZEP observations are present across all sectors, suggesting that industry alone does not explain why firms forgo equity pay in certain years.

3.3 Public attention and the likelihood of ZEP observations

Public attention can place pressure on firms to align the interests of the CEO with those of the shareholders. This pressure is especially prevalent in an era where corporate governance and executive pay are under heightened public and regulatory observation. As public attention intensifies, companies are increasingly focused on structuring compensation packages that reflect performance, often linking them to long-term financial metrics such as stock price. By adopting equity-based compensation, firms aim to mitigate the perception of excessive or unjustified pay, particularly during periods of economic uncertainty or underperformance. In response to public scrutiny, firms are not only motivated to adopt equity-based compensation but also to structure overall CEO pay, choosing between equity and other forms of pay, in line with investor expectations.

To explore whether public scrutiny influences the likelihood of ZEP, we compare trends across firms inside and outside the S&P 1500 index—a proxy for visibility and market scrutiny. Because S&P 1500 firms face greater public scrutiny, we expect them to be under stronger pressure to adopt equity-based compensation, which is commonly

viewed as better aligning CEO incentives with shareholder interest. Figure 4 supports this expectation. As shown in the figure, over time, the annual percentage of firm-year ZEP observations is consistently higher among non-S&P 1500 firms. Chi-square test confirms that the difference in ZEP observations across the two groups is statistically significant (*p*-value=0.000). The difference is economically large as well. For example, in 2022, the percentage of ZEP observations is approximately 3% among S&P 1500 firms, compared to over 11% among non-S&P 1500 firms.

4. Understanding Zero-equity Pay

4.1. Univariate comparison

Table 1 Panel B presents summary statistics of firm, board, and CEO characteristics by ZEP and non-ZEP firm-year observations. The last two columns provide *t*- and *z*-statistics for the differences in means and medians, respectively. Compared with non-ZEP observations, ZEP observations have lower ROA and book leverage, yet show higher sales growth, greater R&D intensity, and more volatile stock returns. ZEP observations also tend to belong to firms that are younger, smaller, and operate in fewer business segments. They are also associated with smaller boards, a lower proportion of independent directors, shorter-tenured CEOs, and a higher percentage of CEOs who are also the Chair of the board. CEO equity ownership is generally higher, while institutional equity ownership is lower among ZEP observations, with a higher proportion being family-controlled. Confirming the pattern observed in Figure 4, ZEP observations are more likely to be non-S&P 1500 firms.

4.2. Multivariate analysis

In this section, we use the following linear probability model to better understand the

characteristics of ZEP firms.

$$ZEP_{it} = \alpha + \beta_1 X_{i,t-1} + industry_n + year_t \quad (1)$$

The dependent variable, ZEP_{it}, equals one if firm i does not report any equity compensation in the Summary Compensation Table or the Plan-based Award Table for year t, and zero otherwise. $X_{i,t-1}$ is a vector of firm characteristics, CEO, and board characteristics that could be related to firms' decision to forgo equity compensation for their CEOs. These characteristics are measured in the year preceding a firm's incidence of zero-equity pay. The terms $industry_n$ and $year_t$ capture industry and year fixed effects, respectively. Industry classification is based on two-digit SIC codes. We base statistical significance on standard errors clustered at the firm level.

As discussed in Section 2.4, the first group of variables pertains to firm performance, including ROA, annual stock return, and sales growth. Some firms may forgo CEO equity compensation despite its role in mitigating shareholder-manager agency conflicts (Jensen and Meckling, 1976; Holmström, 1979), as equity pay can be costly due to its riskiness and potential distortions in managerial incentives (Burns and Kedia, 2006; Bergstresser and Philippon, 2006; Efendi, Srivastava, and Swanson, 2007; Johnson et al., 2009; Armstrong et al., 2013; Edmans and Gabaix, 2016). Given these trade-offs, poor performance can increase the need for stronger performance incentives, making equity-based pay more attractive despite costs. Conversely, firms with strong performance may have alternative mechanisms to incentivize CEOs without relying on equity grants. Moreover, stronger performance may also improve a firm's ability to fund compensation with cash and reduce the need to rely on equity-based incentives. Thus, we conjecture that firms with weaker (stronger) prior performance to be less (more) likely to forgo equity pay for their CEOs.

Equity compensation can incentivize risk-averse managers to take greater risks, which is particularly valuable for firms where risk-taking drives growth and firm value (Jensen and Meckling, 1976; Hall and Murphy, 2002). Following Coles, Daniel, and Naveen (2006), we consider firms to have riskier operations and policies if they invest more in R&D, spend less in capital expenditure, carry higher debt levels, and are younger. Thus, the second set of variables includes R&D intensity, capital expenditures, leverage, and firm age. We posit that younger firms and firms with high-risk investments, such as R&D or higher leverage, are less likely to skip equity pay for their CEOs.

The third group of variables focuses on stock price informativeness. It includes variables such as stock return volatility and firm complexity proxied by firm size and the number of business segments. Incentive contracting theories propose that firms should rely on compensation measures that better reflect executive effort (Holmström, 1979; Murphy, 1985). Consequently, firms are less likely to use equity-based pay when stock prices are less informative. Literature suggests that more complex firms and those with more volatile stock returns have less informative stock prices (e.g., Holmstrom, 1979; Lambert and Larcker, 1987; Ittner, Larcker, and Rajan, 1997; Chen, Goldstein, and Jiang, 2007; Coles, Daniel, and Naveen, 2008). Moreover, high stock volatility make it difficult to set performance targets for equity awards that preserve their intended incentive effect. Therefore, we expect larger and more complex firms and firms with higher stock return volatility to be more likely to forgo CEO equity pay.

The fourth set of variables, comprising institutional ownership and S&P 1500 inclusion, captures shareholder and broader public attention to the firm. Studies show that firms adjust executive pay to avoid negative attention from investors and the media (Core,

Guay, and Larcker, 2008; Kuhnen and Niessen, 2012; Edmans, Gosling, and Jenter, 2023). Because institutional investors favor equity compensation for its perceived ability to align executive and shareholder interests (Starks and Herztall, 1999), firms under greater institutional investor influence will be less likely to forgo equity compensation. Moreover, although equity-based compensation can be costly, exposing firms to risks such as stock price manipulation, heightened shareholder and public scrutiny help curb these costs and further encourage its adoption. We therefore expect that firms facing strong public or shareholder scrutiny will be less likely to forgo equity-based CEO compensation.

When CEOs already hold substantial equity stakes, their interests are naturally aligned with those of shareholders, reducing the need for additional performance-based incentives. Risk-averse CEOs may also prefer cash over risky equity-based pay, especially when they have enough bargaining power to shape their pay mix. To capture the equity alignment and the CEO's bargaining power, we include the two variables: CEO tenure and CEO equity ownership. Prior research show that long-tenured CEOs and those with higher equity ownership wield more influence over the board (e.g., Berger, Ofek, and Yermack, 1997; Denis, Denis, and Sarin, 1997; Hermalin and Weisbach, 1998). Accordingly, we expect firms with longer CEO tenure and larger CEO ownership to be more likely to forgo equity pay for their CEOs.

Table 3 presents the regression results for the full sample in Column 1 and the subsample of firm-year observations with CEO equity ownership below one percent in Column 2. Contrary to the argument that firms with poorer prior performance will be less likely to skip equity pay for their CEOs, we find no significant relation between firm performance (measured by ROA and stock return) with the likelihood of skipping CEO

equity compensation. However, the coefficient of sales growth is positive and significant, indicating that firms are more likely to forgo equity grants after a year of rapid growth. In line with the notion that greater firm risk-taking calls for stronger equity incentives, we find that firms with higher R&D intensity and lower CapEx intensity are less likely to forgo equity-based CEO pay. However, not consistent with the risk-taking incentive argument, younger firms are more likely to do so and leverage show no significant relationship.

We expect firms to be less likely to use equity-based pay if the firm's stock prices are less informative. Consistent with this view, our analysis finds a positive and significant association between daily stock return volatility and ZEP likelihood in both columns. However, we also find that larger firms are less likely to be ZEP, which contradicts the informativeness argument. Supporting the public attention argument, we find that ZEP observations tend to have lower institutional ownership and are also more likely to fall outside the S&P 1500 index. CEO equity ownership has a positive and significant coefficient in Column 1, but this relationship reverses in Column 2. This result suggests that within the low-CEO-ownership subsample (Column 2), increases in CEO ownership are associated with a lower likelihood of a ZEP year, whereas a substantial CEO stake makes forgoing equity pay more possible.

In family-owned or founder-led public firms, CEOs often have significant ownership stakes or other incentives that naturally align them with the company's long-term survival. To preserve family ownership and control, these firms may opt for non-equity compensation to minimize ownership dilution and limit excessive risk-taking (e.g., Li, Ryan, and Wang, 2021). Such concern can be especially relevant in firms with founding family presence that enjoy private benefits of control (e.g., Demsetz and Lehn, 1985;

Burkart et al., 2003; Villalonga and Amit, 2006; Basu et al., 2009). To mitigate these concerns, we restrict our sample to non-family firms in Column 3. The overall findings in Column 3 are aligned with those in Column 1 except for sales growth and R&D, which are no longer significant. The coefficient on business segment is negative and significant, suggesting that complex non-family firms are less likely to skip equity pay for their CEOs, contradicting the stock price informativeness argument. The positive and significant coefficients on CEO tenure and CEO ownership support the idea that when CEOs have a substantial equity stake in their firms or serve for a longer term, their financial interests are already aligned with those of shareholders, potentially diminishing the necessity for additional equity-based incentives.[9]

To provide a more conservative estimate, we restrict the sample to firms excluding firm-year ZEP observations covered by prior equity grants. Column 4's results are qualitatively similar to those in Column 1, except that the coefficient for capital expenditure lost statistical significance in this restricted sample.

We report a few additional robustness checks in the Internet Appendix. In Table IA1 Column 1, we drop firm-year observations in which a new CEO was hired to address concerns that changes in the firm's compensation policy may reflect such transitions. Additionally, we restrict the analysis to the post-2009 period to ensure our results are not driven by decisions made during the 2008-2009 financial crisis, when firms may have withheld CEO equity grants due to liquidity constraints and elevated stock price volatility (Table IA1 Column 2). Lastly, we re-estimate the baseline model from Column 1 with firm

[9] We discuss the construction of the family firm sample in detail in Section 2.3. In untabulated results, we also run the robustness tests of the union of Anderson, Reeb, and Zhao (2012) family firm sample and the firms in the Incentive Lab from 2001-2010 without extending the data by backfill and forwardfill. The results are qualitatively similar.

and year fixed effects and omit the S&P 1500 indicator (Table IA1 Column 3). Across all three specifications, we observe qualitatively similar findings. In main tables, we retain industry fixed effects rather than firm fixed effects to allow for the inclusion of the S&P 1500 indicator as a proxy for public attention

4.3 Entry decision of zero-equity pay

We extend the regression analysis of the previous section to study the determinants that make firms switch from being equity-granting to ZEP. We follow Bizjak, Lemmon, and Whitby (2009) to construct our sample. The dependent variable, entry event indicator, is one for firm-year observations in which the firm, for the first time, opts not to use equity grants in its CEO pay structure. In other words, an entry event occurs when a firm that offered equity compensation in previous years grants none in the current year. After a firm's first ZEP year, we exclude all subsequent firm-year observations from the sample. The dependent variable equals zero for all firm-year observations prior to the year the firm is identified as a ZEP firm and for all firm-year observations of firms that have consistently used equity grants in its CEO pay structure during our sample period. This definition of the dependent variable measures the yearly incidences of new ZEP adopters – it equals the number of firms enter ZEP status in a given year divided by the pool of firms that have never been ZEP up to that year.

Table 4 presents the estimation results from linear probability models for zero-equity entry decision across multiple samples. Column 1 shows the results for the full sample, while Columns 2 and 3 display findings for specific subsamples: firms with CEO equity ownership below one percent and non-family firms, respectively. Firms with lower capital expenditure and higher stock return volatility are more likely to enter ZEP status. Firms

with low capital expenditure may have limited growth opportunities, making equity compensation, which aligns the CEO's incentives with long-term growth goals, less relevant. Additionally, high return volatility can make stock price-based performance metrics unpredictable and less reliable as benchmarks for CEO performance.

Consistent with the findings in Table 3, firms that are not included in the S&P 1500 index are more likely to initiate zero-equity pay. The coefficients on institutional ownership become insignificant though directionally similar to Table 3. Additionally, we find that firms with shorter-tenured CEOs are more likely to use a zero-equity compensation design. In Column 4, we examine whether year-over-year changes in the independent variables are associated with a firm's decision to initiate ZEP. Specifically, the independent variables are measured as changes from the previous year to the current year, except for count variables such as firm age or CEO tenure, which by definition increase by exactly one each year. The results indicate that increases in stock return volatility, being a non-S&P 1500 firm, and increases in CEO ownership are associated with a higher likelihood that firms initiate ZEP.

Overall, the initial-adoption results in Table 4 are similar to those in Table 3, suggesting that firms that are younger and riskier, face less public oversight, and are led by shorter-tenured CEOs are more likely to initiate a zero-equity pay structure.

4.4 Corporate governance and zero-equity pay

One plausible explanation for zero-equity compensation practices lies in the preferences and relative bargaining power of key decision makers, i.e., the board and the CEO. When CEOs hold greater influence and face "friendly" boards, they are more likely to succeed in implementing compensation policies that align with their own interests

(Hermalin and Weisbach, 1998). We expect that more independent boards and those with less powerful CEOs are less likely to skip equity pay for their CEOs. Thus, in this section, we investigate whether CEO power and governance variables are related to firms' ZEP decisions. In addition to CEO tenure and ownership, we introduce *CEO duality*, an indicator variable that equals one if the CEO also serves as the chairman of the board for a given firm-year observation and zero otherwise, to measure CEO power. We also include *board size* in addition to *independent director%* to capture board governance. Our analysis is limited to firms with CEO and board variables data, which reduces the sample size from 31,479 to 26,934.

We add these CEO and governance variables to our baseline models in Table 3 and report regression estimates in Table 5. Column 1 shows the results for the full sample, while Columns 2, 3, and 4 display findings for specific subsamples: firms with CEO equity ownership below one percent, non-family firms, and excluding firm-year ZEP observations covered by prior equity grants, respectively. Each regression includes the same control variables as in the baseline regression in Table 3, along with industry and year fixed effects. Across all models, firms with a higher percentage of independent directors are less likely to skip equity pay for their CEOs. *CEO duality*, however, is positively associated with ZEP observations, indicating that more powerful CEOs are more likely to have ZEP.

Adding CEO duality and other governance controls attenuates some of the relationships observed in Table 3, like the association with stock-return volatility, R&D, and CAPX, but the bulk of our results remains robust in this specification. Specifically, ZEP observations continue to be positively associated with sales growth, negatively associated with firm age, are less common among S&P 1500 firms, show lower institutional ownership in three of

the four models, and are associated with higher CEO ownerships.

4.5 Shareholder activism and zero-equity pay

We use the most recent Say-on-Pay (SOP) voting outcomes to measure shareholder sentiment regarding a firm's compensation policy. Higher SOP support reflects shareholder satisfaction with the executive compensation design, while lower support indicates dissatisfaction.

We first compute the SOP vote against percentage, defined as the ratio of "against" votes to the total votes cast in the most recent SOP vote preceding the firm-year observation of the compensation design. The SOP vote against percentage has a mean of 8.8% and a median of 4.06%, with over 75% of SOP votes receiving less than 10% opposition. Due to the skewness in the SOP vote against percentage, we create an indicator variable to better capture substantial shareholder opposition. This indicator, *SOP vote against in the top quartile*, equals one if the SOP vote against percentage exceeds the 75th percentile of the sample and zero otherwise.

To focus on shareholders' attention to the ZEP policy, we interact the SOP vote against indicator with the presence of ZEP in the prior year. The interaction term captures the differences in the likelihood of continuing the ZEP policy between firms with high vs. low SOP vote against rates. As shown in Table 6, the interaction coefficient between the SOP vote against indicator and ZEP status in the prior year is negative and significant in two models. This result suggests that firms are less likely to continue their ZEP policy when

shareholders strongly oppose their compensation policy in the prior year.

4.6 Public attention and zero-equity pay

In this section, we investigate public attention as a potential mechanism driving firms' decisions to adopt zero-equity pay (ZEP) policies. Recent research by Cabezon (2025) highlights a trend toward standardization in CEO compensation structures, largely driven by external pressures from institutional investors, proxy advisory firms, and enhanced disclosure requirements. This standardization, while pervasive, may diminish firm value as it moves compensation packages away from optimal, firm-specific incentive arrangements. We conjecture that firms facing heightened public attention are more likely to conform to prevalent compensation practices, specifically adopting equity-based compensation to align CEO incentives with shareholder interests.

Public attention can manifest through media coverage and analyst scrutiny. Weisbach (2007) argues that firms may intentionally camouflage executive compensation by having it take forms typically not discussed in the press to avoid attracting media attention. Analyst coverage plays a critical monitoring role in external governance by shaping public perceptions and investor expectations. Chen et al. (2015) demonstrate that reduced analyst coverage correlates with higher total and excess CEO compensation and diminished sensitivity of compensation to firm performance. Analysts focus on CEO compensation issues through their reports and earnings calls, which can heighten public awareness and investor scrutiny. Hence, we measure public attention to CEO compensation through the extent of news coverage and the number of analysts following the firm, reflecting both media-driven and analyst-driven external attention.

To construct the news coverage measure, we analyze all articles on executive compensation published between 1997 and 2022 in U.S. newspapers covered by the Factiva news database. Specifically, we manually search for articles containing any of the following keywords: "executive compensation," "executive pay," "CEO compensation," or "CEO pay" for each firm and year. This search yields a total of 80,055 articles. We measure news coverage intensity in three ways. First, *Comp. news (market)* is the annual proportion of firms covered by at least one CEO compensation-related article relative to the total number of firms in the market during the prior fiscal year, capturing overall market-level attention. Second, *Comp. news (industry)* represents the annual proportion of firms within each three-digit SIC industry with at least one CEO compensation-related article in the prior fiscal year, reflecting industry-specific attention. Third, *Comp. news (firm)* is an indicator variable equal to one if a firm has at least one CEO compensation-related article in the prior fiscal year, and zero otherwise. Summary statistics reported in Table 1 Panel A indicate that approximately 41% of firms in our sample have at least one article related to CEO compensation. Although the average news coverage is similar at the market, industry, and firm levels, their distributions differ significantly. For example, industry-level coverage exhibits much greater dispersion than market-level coverage.

Next, we examine whether news coverage of CEO compensation are related to the decision to skip CEO equity compensation. Table 7 presents the results of our analysis. We include industry fixed effects in all specifications but exclude year fixed effects due to the year-invariant nature of news coverage ratios. In Column 1, using *Comp. news (market)* as the independent variable, we find that greater market-wide attention to CEO compensation reduces the likelihood that a firm forgoes CEO equity pay. Similarly, Column 2 shows that

higher industry-specific news coverage significantly decreases the probability that firms within that industry forgo CEO equity compensation. These findings suggest that market- and industry-level attention exerts pressure on firms to conform to prevailing compensation practices. The relationship is weaker at the firm level, as shown in Column 3.

Our second measure of public attention is analyst coverage, which is the number of analysts following each firm. Following Dikolli, et al. (2021), we collect analyst coverage data (variable *numest*) from the Institutional Brokers' Estimate System (IBES) summary file, measured in the quarter before the beginning of each fiscal year. As shown in Table 1 Panel A, the firms in our sample are followed by roughly nine analysts on average, with a median analyst coverage of eleven. Table 7 Column 4 presents the results using *number of analysts* as the independent variable. The negative and statistically significant coefficient indicates that higher analyst coverage increases the likelihood of firms providing equity-based CEO compensation as predicted.

The findings from Tables 3 to 7 demonstrate that external and internal attention are associated with firms' ZEP decisions.[10] Firms in the S&P 1500 and those receiving greater news and analyst coverage are more likely to grant equity-based compensation. In contrast, firms outside the S&P 1500 with lower public visibility are more likely to forgo equity-based compensation. Additionally, the negative relationships between ZEP and both institutional ownership and SOP vote opposition rates highlight the role of shareholder oversight in shaping compensation policies.

[10] Excluding data prior to 2006, where the ZEP indicator is more prone to measurement error, does not alter our main findings. The results reported in Table IA2 remain consistent with those in Table 3 and Tables 5–7 based on the full sample.

4.7. Evidence from the EDGAR Sample

Since the Incentive Lab dataset focuses on the larger U.S. firms, the observed ZEP trend in this sample may not fully reflect compensation practices among smaller or mid-sized companies. To complement our main analyses, we construct a broader sample based on the data in the Summary Compensation Tables in EDGAR filings from 2006 to 2022, yielding over 47,000 firm-year observations across 6,284 unique firms (see Internet Appendix A2 for details).[11] The findings confirm that ZEP is more prevalent among smaller firms: approximately 39.6% of firms from this sample report at least one ZEP observation, compared to 33% of Incentive Lab firms over the same period. As shown in Figure IA1, all of the trends and patterns seen in the Incentive Lab sample are even stronger in the broader EDGAR sample. ZEP observations are more common, cross-industry variation is wider, and the influence of S&P1500 inclusion on ZEP rate is stronger.

Table IA3 presents the multivariate regressions for the broader EDGAR sample. A larger number of firm characteristics now obtain statistical significance than in the Incentive Lab baseline. Most significant coefficients carry the same signs as before, yet several notable differences appear. In this broader sample, firm-years with higher ROA but weaker stock returns and sales growth are more likely to be ZEP, whereas ROA and stock return were insignificant in the baseline sample and sales growth was positively related to ZEP. This shift in results likely reflects the greater performance dispersion and lower stock price efficiency typical of smaller firms. Book leverage turns positive and significant, suggesting that higher financial risk is associated with a greater likelihood of ZEP, perhaps

[11] We caution that the EDGAR-based results carry greater measurement error, because a firm's ZEP status can only be inferred from the Summary Compensation Table rather than the more detailed Plan-Based Award Table.

because highly levered smaller firms already face enough risk without issuing equity incentives. CEO tenure remains negatively related to ZEP entry but becomes positive and significant in other specifications. Combined with the consistently positive coefficients on CEO ownership and the positive CEO-duality coefficient in Column 4, these results indicate that more powerful CEOs are better able to skip the equity-based pay. Overall, while the main patterns from the baseline hold, the EDGAR results point to stronger agency concerns among smaller firms.

5. Compensation Structure in ZEP Years

In this section, we examine the pay design in ZEP firm-years and how it differs from that of non-ZEP firm-years. We categorize the non-equity parts of CEO pay into salary, total cash incentives, and other compensation. Salary is the CEO's base salary reported in the Summary Compensation Table. Total cash incentives include all performance-based cash incentives (short- and long-term) reported in the Summary Compensation Table. Short-term cash incentives include bonuses and other cash payments tied to annual performance metrics, while long-term cash incentives consist of payments with a performance horizon longer than one year. Prior to 2006, information on short-term and long-term cash compensation is based on bonus payouts and cash payouts from long-term incentive plans (LTIPs), respectively, as disclosed in the Summary Compensation Table. From 2006 onward, we measure short-term (long-term) cash compensation by summing all non-equity compensation grants disclosed in the Plan-Based Award Table in a given year, with a performance horizon of less than (more than) one year.

Other compensation is the "legacy other compensation" (before 2006) and the sum of all retirement benefits and other compensation (after 2006) reported in the Summary

Compensation Table, due to SEC regulation requiring firms to report retirement benefits separately from other compensations. Each individual compensation component described above is scaled by total compensation for the year to capture the relative size of the component.

Table 8 presents the univariate comparison. In ZEP firm-years, CEOs receive significantly higher non-equity-based pay across all three components: salary, cash incentives, and other compensation. In ZEP years, cash incentives account for an average of 35.4% of total CEO compensation, with a median of 32.2%. In contrast, the average cash incentives in non-ZEP years is 30.1% of total compensation, with a median of 28.3%. Salaries make up nearly 50% of total compensation on average in ZEP years, far above the 22% observed in non-ZEP years. Other compensation constitutes an average of 10.9% of total compensation in ZEP years, compared to just 6.2% in non-ZEP years. Interestingly, within cash incentives, long-term cash incentives account for a larger share of total compensation during a non-ZEP year than a ZEP year. Because ZEP years also grant no equity incentives (another form of long-term incentives), the reduced use of long-term cash incentives points to a generally weaker long-term incentive policy during ZEP years. In the last row of the table, we compare the ratio of total compensation to total assets, expressed in percentage points, to account for the strong positive relation between firm size and pay levels (Gabaix and Landier, 2008). Non-ZEP firm-years have significant higher CEO compensation per dollar of assets than ZEP firm-years, based on both the mean and median comparisons.

To examine whether the differences in non-equity pay hold in a multivariate setting, we regress each non-equity pay component on the ZEP indicator plus the usual controls.

Table IA4 presents the results. The coefficient of ZEP indicator is consistently positive and significant across all three dependent variables, indicating higher salary, cash incentives, and other compensation in ZEP years. This pattern holds for the full sample and in each of three subsamples: (1) firms with CEO equity ownership below one percent, (2) non-family firms, and (3) excluding firm-year ZEP observations covered by prior equity grants. In sum, ZEP firm-years systematically deliver higher non-equity pay than non-ZEP years.

6. Implications for Firm Performance and Pay-for-Performance Sensitivity

6.1. Future performance and zero-equity pay

The principal-agent framework, which forms the foundation of executive compensation design, emphasizes that performance-linked pay aligns executives' interests with shareholders' goals (Jensen & Meckling, 1976).[12] While this theoretical foundation is widely accepted, the empirical evidence on the relationship between equity incentives and firm performance remains inconclusive. Some studies posit that observed CEO equity incentives are "too low" on average and predict a positive relationship between equity incentives and firm performance (Morck, Shleifer, and Vishny, 1988; McConnell and Servaes, 1990). However, this view raises the challenge of disentangling causality—whether better future performance leads firms to grant equity incentives or whether equity incentives directly drive future performance.

Conversely, others suggest that firms optimize executive compensation by setting equity incentives at levels that maximize shareholder value, predicting no significant

[12] Equity incentives, a key component of executive compensation, introduce significant complexity, particularly in balancing risk and incentives (Murphy, 1999). Research has also examined unintended consequences of equity-based pay structures, such as promoting excessive risk-taking (Coles et al., 2006) or encouraging short-termism (Graham et al., 2005), though these topics lie outside the scope of our study.

relationship between equity incentives and performance (Core and Guay, 1999; Himmelberg, Hubbard, and Palia, 1999). A hybrid perspective, advanced by Core, Guay, and Larcker (2002), proposes that firms optimize incentives on average but face transaction costs that hinder continuous adjustment. Occasional misalignments may arise, but firms will realign incentives when the benefits outweigh the costs, leading to a positive relationship between equity incentives and performance. If such systematic misalignment exists, ZEP firms should underperform relative to non-ZEP firms, which benefit from higher equity incentives.

To examine these hypotheses, we compare the future performance of ZEP and non-ZEP firms. We use two metrics to measure future firm performance – stock return and ROA. Stock-based measures reflect market expectations and align with long-term goals, while accounting-based performance measures are less volatile and better capture managerial decision-making and effort. We calculate both metrics for short-term (one-year forward) and long-term (three-year forward) horizons. For the three-year window, we take the average over the three years that follow each ZEP or non-ZEP firm-year observation.

Table 9 presents the results of regressing future firm performance on the ZEP indicator. We present only coefficients on the interest variable for brevity, but the regressions include the same independent variables from the baseline regressions in Table 3 and governance variables from Table 5. Panel A reports the results for one-year future stock return on the left and for three-year stock return on the right. Full sample results are presented in Columns 1 and 2, while the results for the subsample after excluding ZEP observations covered by prior equity grants are included in Columns 3 and 4. The coefficient on *Zero-equity Pay* is negative and statistically significant for one-year stock returns but is

statistically insignificant for three-year stock returns. Panel B presents the regression results for future ROA. The coefficients on *Zero-equity Pay* are statistically insignificant in all specifications, suggesting no significant difference in future operating performance between ZEP and non-ZEP observations. To test the robustness of these findings, we conducted additional analyses on subsamples of firms with CEO ownership below one percent, non-family firms, and firms excluding pre-2006 data. The untabulated results show no significant difference in the long-run stock return or ROA between firms with ZEP and non-ZEP observations, reinforcing the conclusion that ZEP firm-years do not exhibit future underperformance, especially in the long-run. Overall, the evidence does not indicate that ZEP policies harm firm performance.

6.2 Pay-for-performance sensitivity and zero-equity pay

We investigate whether the absence of equity-based incentives compromises the effectiveness of CEO compensation structures in aligning pay with firm performance. Specifically, we estimate PPS as the sensitivity of total CEO compensation to firm performance, focusing on the interaction between performance metrics—ROA and stock return—and the ZEP indicator.

Table 10 presents the results of the PPS regressions for the full sample and key subsamples, including firms with CEO ownership below one percent, non-family firms, and excluding ZEP observations covered by prior equity grants. The primary coefficients of interest are the interaction terms between the *ZEP* indicator and firm performance metrics. The interaction coefficients between *ZEP* and ROA (both contemporaneous and lagged) are statistically insignificant across most specifications and positively significant in Columns 3, 7, and 9. This finding suggests either comparable or even stronger pay for

operating performance sensitivity in ZEP years than in non-ZEP years. The interaction coefficients between *ZEP* and stock returns are also mostly insignificant, except for Columns 3, 7, and 8, where the coefficient is negative and significant. A weaker link between pay and stock performance is expected because ZEP years offer no equity-based compensation. It is surprising, however, that most interaction terms between ZEP and stock return are insignificant, which suggests that although firms do not explicitly tie CEO pay to stock price in ZEP years, they still consider stock performance when deciding total CEO compensation.

Overall, these findings suggest that the PPS of firms with ZEP observations do not significantly differ from those of non-ZEP firms. Untabulated analyses show that excluding data prior to 2006, where the ZEP indicator is more prone to measurement error, leaves our results unchanged. This robustness check confirms that ZEP structure is not inherently misaligned with performance objectives. One possible interpretation is that equity compensation serves as a more explicit commitment to higher future pay contingent on stock price appreciation. In contrast, cash-based pay may function as an implicit commitment to rewarding strong performance. Under this framework, even in the absence of equity grants, CEOs in ZEP firms may still anticipate higher compensation when they deliver strong performance, potentially explaining the observed similarity in PPS between ZEP and non-ZEP firms.

The findings in this section contribute to the broader debate on the role of equity incentives in executive compensation. Despite the widespread use of equity compensation, this study underscores that firms' compensation decisions—whether involving equity grants or not—appear to align with firm-specific value-maximization objectives. Perhaps

the absence of significant differences in PPS between ZEP and non-ZEP firms challenges the prevailing view that equity incentives are universally superior in aligning managerial and shareholder interests.

7. Conclusion

Despite the theoretical appeal and the widespread practice of granting equity-based compensation to CEOs, our analysis reveals that a significant share of U.S. public firms across all industries completely forgo equity-based compensation for their CEOs in some years. A firm's ZEP status tends to persist over time; having a ZEP observation in one year significantly increases the likelihood of another in the next year. We show that ZEP observations are not mechanically driven by firm characteristics such as being a family firm, having a CEO with a high ownership stake, or compensation structures that occasionally result in gaps between equity grants.

Firms that forgo CEO equity pay in a given year tend to be smaller, younger, invest less, and have more volatile stock returns. Neither accounting nor stock performance appear to have any significant influence on the likelihood of omitting equity compensation. Instead, public attention appears to be a key driver behind firms' ZEP decisions. Firms are less likely to forgo equity pay when they have higher institutional ownership, belong to the S&P 1500 index, have recently experienced lower Say-on-Pay support, attract more news coverage of CEO compensation, and are followed by more analysts.

Compensation design differs significantly between ZEP and non-ZEP observations. In ZEP years, firms trade lower total pay (due to the absence of equity-based pay) for safer pay. CEOs in ZEP firms receive significantly higher salaries, other compensation, and cash-based incentives. Both future performance and pay-for-performance sensitivity are

comparable between ZEP and non-ZEP firms, which suggests that performance incentives are not necessarily weaker in the absence of equity-based pay.

Our paper offers valuable insights for both investors and researchers. For investors, it suggests that firms cater to investor preferences by adopting equity-based compensation when investor attention is high, perhaps under the assumption that investors believe equity-based pay better aligns managerial and shareholder interests. However, our findings suggest that investors should not regard the use of equity compensation as a reliable signal of superior incentive alignment, as firms without equity compensation do not exhibit lower long-run performance or weaker pay-for-performance sensitivity. For researchers, our evidence invites a reassessment of equity compensation as an effective tool for incentive alignment across all public firms and raises several questions for future research. For example, how do firms achieve comparable performance incentives without equity-based pay? Could the primary benefit of equity compensation lie in executive retention rather than incentive alignment? Similarly, why are CEOs willing to accept significantly lower pay packages in the absence of equity-based compensation? Do CEO preferences, such as risk aversion, influence these decisions?

Appendix A. Variable definitions

Compensation variables (Source: Incentive Lab, EDGAR):

Entry indicator: An indicator variable that equals one for firm-year observations in which the firm, for the first time, does not include equity compensation in its CEO pay, and zero otherwise.

Long-term cash incentive: Cash compensation with a performance horizon longer than one year, which is total cash payouts from long-term incentive plans (LTIPs) before 2006, and the sum of all long-term cash grants in the Plan-Based Award Table from 2006 onward.

Other compensation: Other compensation is reported as "legacy other compensation" in the Summary Compensation Table before 2006. After 2006, this amount includes the sum of retirement benefits and other compensation (Other Compensation + PensionNQDC) in the Summary Compensation Table.

Salary: CEO salary reported in the Summary Compensation Table.

Short-term cash incentive: Cash compensation tied to annual performance metrics, which is the value of bonus reported in the Summary Compensation Table before 2006, the total value of all short-term cash grants reported in the Plan-Based Award Table (or bonus from the Summary Compensation Table if short-term cash grant is unavailable) in 2006 and the total value of all short-term cash grants reported in the Plan-Based Award Table from 2007 onward.

Total cash incentive: CEO's total cash compensation includes sum of bonus and long-term cash reported in the Summary Compensation Table before 2006 and the sum of short-term and long-term cash grants reported in the Plan-Based Award Table from 2006 onward.

Total compensation: Total compensation of the CEO reported in the Summary Compensation Table.

ZEP firms for 3 consecutive years: An indicator variable that equals one if the firm does not report any equity grants for three consecutive years based on the relevant reporting tables (the Summary Compensation Table before 2006 or the Plan-Based Award Table from 2006 onward), and zero otherwise.

Zero-equity pay (ZEP): An indicator variable that equals one if a firm reports no equity grants in the Summary Compensation Table (before 2006) or the Plan-Based Award Table (2006 onward) in a given year, and zero otherwise.

ZEP not covered by prior grants: An indicator variable that equals one if a firm with a short-term annual grant or long-term overlapping grant (reported in the Plan-Based Award Table from 2006 onward) fails to grant equity compensation in a given year and zero otherwise.

Firm characteristics (Source: Bloomberg, Compustat, CRSP, family ownership data from Anderson, Duru and Reeb (2009), Andersdon, Reeb and Zhao (2012) and Li and Ryan (2022), Form 13F:

Annual stock return: Annual stock return compounded from CRSP daily stock return over the fiscal year.

Assets: The natural logarithm of one plus total assets (AT), i.e., Ln (1 + total assets).

Assets squared: The squared value of assets.

Business segments: The number of business segments of a firm.

Book leverage: The sum of long-term debt plus debt in current liabilities divided by total assets, (DLTT +DLC /AT).

CAPX: The ratio of capital expenditure to6 total assets.

Daily stock return volatility: The standard deviation of CRSP daily stock return measured over the fiscal year.

Family firm: An indicator variable that equals one when the family holds a 5% or larger ownership stake and zero otherwise (Anderson, Reeb and Zhao, 2012).

Firm age: Number of years since a firm enters the COMPUSTAT database.

(Continued.)

Appendix A continued.

Institutional ownership: Total ownership, in percentage points, by all the institutional investors that own 5% or more of the firm's common stocks.
R&D: The ratio of research and development expenses to total assets.
ROA: Operating income before depreciation scaled by total assets in a fiscal year.
S&P 1500: An indicator variable that equals one if the firm was included in S&P 1500 in the fiscal year.
Sales growth: Sales growth is the change in net sales scaled by lagged net sales.

Board and CEO characteristics (Source: BoardEx, Execucomp, Form 13F, ISS Directors, ISS Governance):
Board size: The natural logarithm of one plus the number of directors on the board.
CEO duality: An indicator variable that equals one if the CEO is the Chairman of the board.
CEO ownership: The percentage of firm shares held by the CEO.
CEO ownership <1%: An indicator variable that equals one if the CEO's ownership is less than or equal to 1%, zero otherwise.
CEO ownership < 5%: An indicator variable that equals one if the CEO's ownership is less than or equal to 5%, zero otherwise.
CEO tenure: The natural logarithm of one plus the number of years the CEO served in the firm, i.e., Ln (1 + CEO tenure).
Independent directors: The percentage of directors that are not affiliated with the firm.
Say-on-Pay vote against (%): The ratio of the number of "against" votes to total number of votes cast from the most recent SOP vote before defining ZEP firms.

CEO compensation news coverage (Source: Factiva, Institutional Brokers Estimate System (IBES)):
Comp. news (firm): An indicator variable that equals one if Factiva covers at least one news article about the CEO compensation of the firm in the previous fiscal year, and zero otherwise.
Comp. news (industry): The annual proportion of firms within a three-digit SIC industry with at least one CEO compensation news article in Factiva in the previous fiscal year.
Comp. news (market): The annual proportion of all firms with CEO compensation news articles in Factiva relative to the total number of firms, in the previous fiscal year.
Number of Analysts: The natural logarithm of one plus the number of analysts reporting a forecast for the firm ('numest' variable in IBES), measured before the beginning of a fiscal year.

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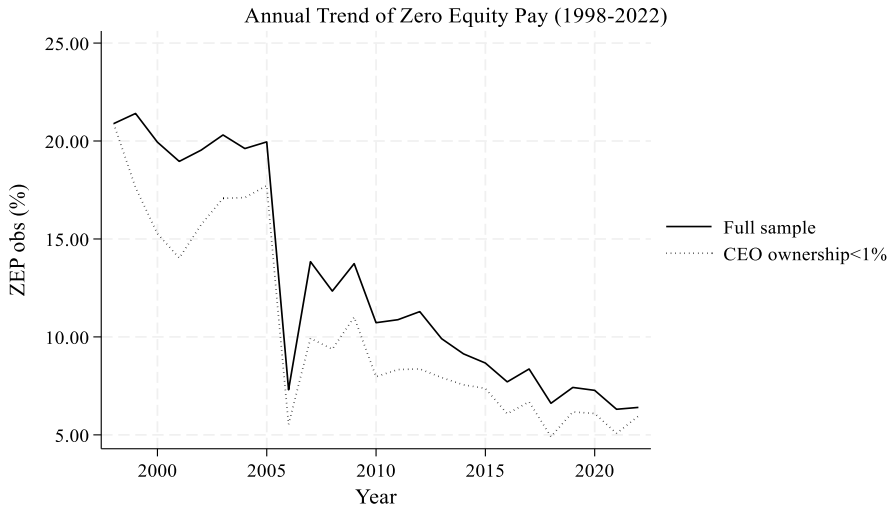
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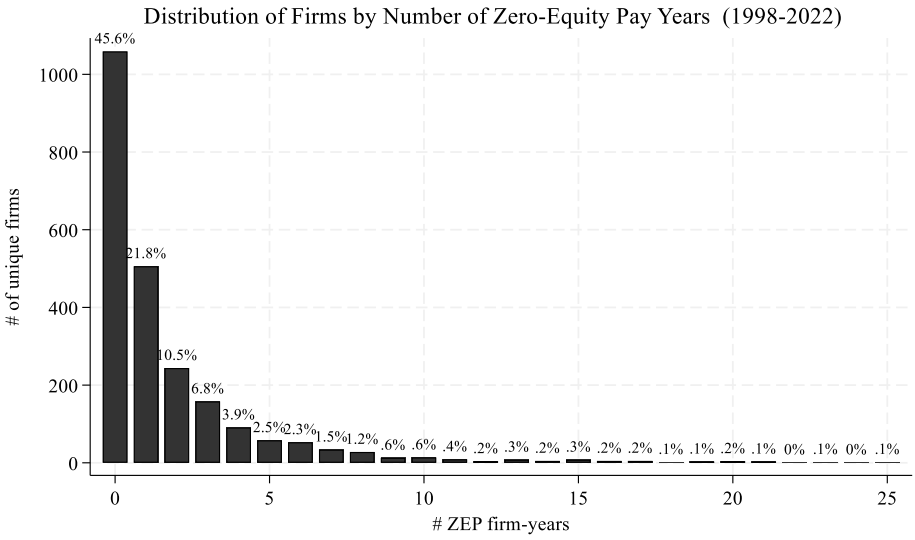
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Figure 1. Annual Trend of Zero-Equity Pay



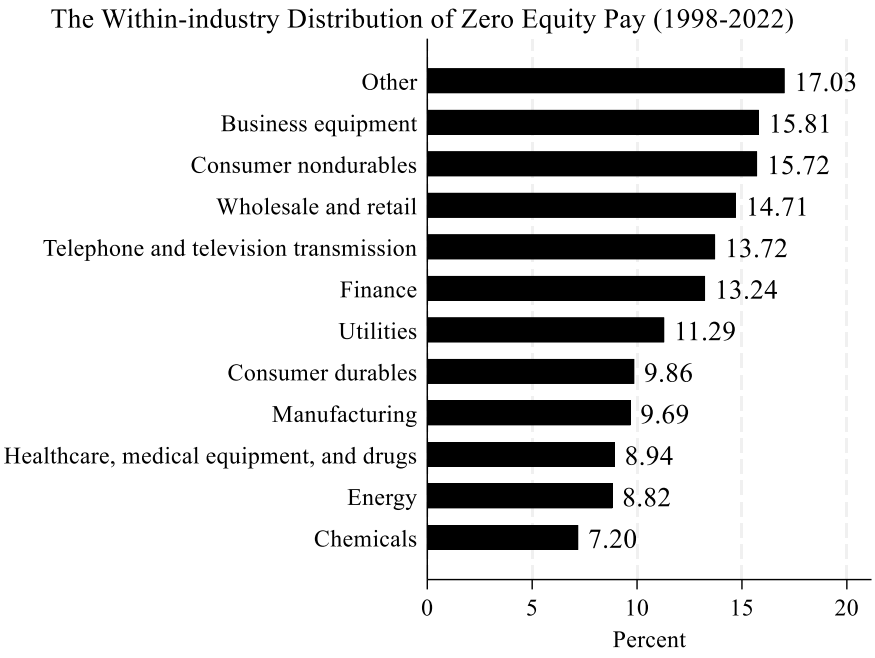
Notes: Figure 1 illustrates the annual trend in the proportion of ZEP observations within the Incentive Lab sample from 1998 to 2022. The solid black line represents the full sample, while the dotted lines correspond to the subsamples of firms with CEO ownership below 1%.

Figure 2. Distribution of Firms by Number of Zero-Equity Pay Years



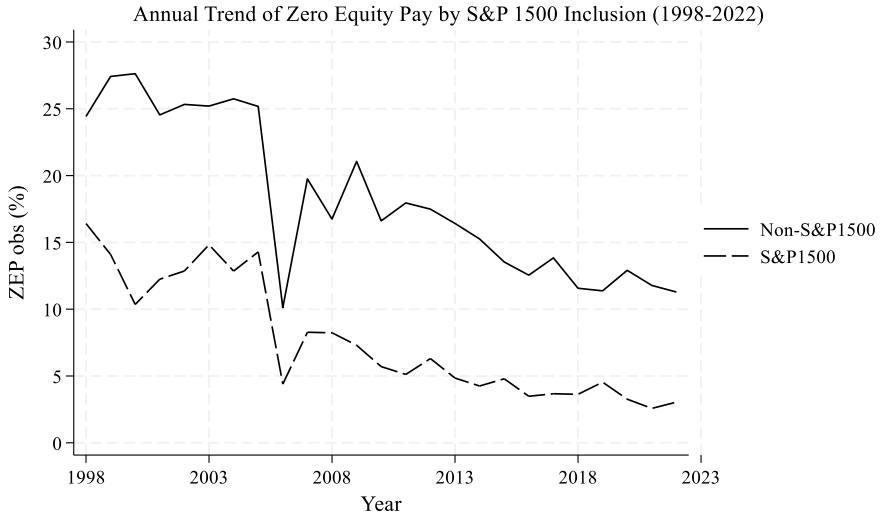
Notes: Figure 2 plots the number of unique firms that experienced 0, 1, 2, and so on ZEP firm-years within the Incentive Lab sample from 1998 to 2022. Bar heights show unique firm counts, and the percentage displayed above each bar gives that group's share of the total sample.

Figure 3. The Within-Industry Distribution of Zero-Equity Pay



Notes: Figure 3 presents each industry's percentage of total ZEP firm-year observations in the Incentive Lab sample from 1998 to 2022, arranged in descending order. Industries are categorized using the Fama-French 12 industry classification.

Figure 4. Annual Trend of Zero-Equity Pay by S&P 1500 Inclusion



Notes: Figure 4 plots, for each year, the percentage of ZEP firm-year observations for firms in the S&P 1500 (dashed line) versus those not in the index (solid line). The sample period is from 1998 to 2022.

Table 1. Descriptive Statistics

Panel A: Summary statistics for all firms						
	Obs.	Mean	SD	25%	Median	75%
Zero-equity pay (0/1)	31,479	0.132	0.338	0.000	0.000	0.000
ZEP for three consecutive years (0/1)	29,458	0.072	0.259	0.000	0.000	0.000
CEO ownership (%)	31,479	0.014	0.046	0.000	0.002	0.005
CEO ownership < 1% (0/1)	31,479	0.830	0.375	1.000	1.000	1.000
CEO ownership < 5% (0/1)	31,479	0.938	0.241	1.000	1.000	1.000
Family firm (0/1)	16,444	0.161	0.368	0.000	0.000	0.000
ROA	31,479	0.111	0.109	0.052	0.111	0.170
Annual stock return (%)	31,479	0.185	0.516	-0.100	0.123	0.368
Sales growth (%)	31,479	14.920	37.097	-0.465	7.733	19.805
R&D (%)	31,479	0.002	0.005	0.000	0.000	0.001
CAPX (%)	31,479	0.043	0.048	0.010	0.029	0.058
Book leverage (%)	31,479	0.271	0.209	0.098	0.249	0.399
Firm age (yr)	31,479	27.688	18.529	12.000	22.000	42.000
Daily stock return volatility (%)	31,479	0.026	0.015	0.015	0.022	0.031
Assets ($ billions)	31,479	17.970	46.604	1.447	4.110	12.973
Business segments (#)	31,479	6.530	5.745	3.000	4.000	11.000
Institutional ownership (%)	31,479	0.688	0.283	0.558	0.765	0.892
S&P 1500 (0/1)	31,479	0.520	0.500	0.000	1.000	1.000
Independent directors (%)	28,049	0.741	0.156	0.667	0.778	0.875
Board size	29,454	8.421	3.810	6.000	9.000	11.000
Say-on-pay vote against (%)	10,091	0.088	0.115	0.024	0.046	0.093
CEO tenure (yr)	31,479	8.957	5.899	5.000	8.000	12.000
CEO duality (0/1)	31,479	0.498	0.500	0.000	0.000	1.000
Comp. news (market) (%)	31,479	0.413	0.195	0.301	0.460	0.582
Comp. news (industry) (%)	31,479	0.413	0.280	0.177	0.421	0.600
Comp. news (firm) (0/1)	31,479	0.413	0.492	0.000	0.000	1.000
Number of analysts	31,479	11.703	9.345	4.000	11.000	18.000

Continued.

Table 1 continued.
Panel B: Summary statistics by zero-equity pay (ZEP) and non-ZEP observations

	ZEP =1			ZEP =0			(ZEP - Non-ZEP)	
Variables	Obs	Mean	Median	Obs	Mean	Median	Diff. in means t-stat	Diff. in medians z-stat
CEO ownership (%)	4,143	0.039	0.002	27,336	0.010	0.002	0.029***	0.001***
CEO ownership < 1% (0/1)	4,143	0.671	1.000	27,336	0.855	1.000	-0.183***	0.000***
CEO ownership < 5% (0/1)	4,143	0.825	1.000	27,336	0.956	1.000	-0.131***	0.000***
Family firm (0/1)	1,937	0.396	0.000	14,507	0.130	0.000	0.266***	0.000***
ROA	4,143	0.105	0.103	27,336	0.111	0.112	-0.007***	-0.009***
Annual stock return (%)	4,143	0.211	0.112	27,336	0.182	0.124	0.030***	-0.012
Sales growth (%)	4,143	22.103	11.295	27,336	13.832	7.383	8.271***	3.912***
R&D (%)	4,143	0.002	0.000	27,336	0.001	0.000	0.001***	0.000
CAPX (%)	4,143	0.044	0.029	27,336	0.043	0.029	0.001	0.000
Book leverage (%)	4,143	0.250	0.210	27,336	0.274	0.253	-0.024***	-0.044***
Firm age (yr)	4,143	20.263	15.000	27,336	28.813	24.000	-8.550***	-9.000***
Daily stock return volatility (%)	4,143	0.030	0.026	27,336	0.025	0.021	0.005***	0.005***
Assets ($ billions)	4,143	11.534	1.933	27,336	18.945	4.558	7.412***	-2.625*
Business segment (#)	4,143	5.937	3.000	27,336	6.620	4.000	-0.683***	-1.000***
Institutional ownership (%)	4,143	0.554	0.593	27,336	0.709	0.782	-0.155***	-0.190***
S&P 1500 (0/1)	4,143	0.300	0.000	27,336	0.553	1.000	-0.253***	-1.000***
Independent directors (%)	3,362	0.646	0.667	24,687	0.753	0.778	-0.107***	-0.111***
Board size	3,744	7.061	7.000	25,710	8.619	9.000	-1.558***	-2.000***
Say-on-pay vote against (%)	563	0.099	0.031	9,528	0.088	0.046	0.011*	-0.015***
CEO tenure (yr)	4,143	8.186	7.000	27,336	9.074	8.000	-0.888***	-1.000***
CEO duality (0/1)	4,143	0.536	1.000	27,336	0.492	0.000	0.044***	1.000***
Comp. news (market) (%)	4,143	0.346	0.331	27,336	0.424	0.482	-0.078***	-0.151***
Comp. news (industry) (%)	4,143	0.330	0.306	27,336	0.426	0.429	-0.096***	-0.122***
Comp. news (firm) (0/1)	4,143	0.280	0.000	27,336	0.434	0.000	-0.154***	0.000***
Number of analysts	4,143	8.591	6.000	27,336	12.174	11.000	-3.583***	-5.000***

Notes: Table 1 Panel A presents the summary statistics for variables used in regression analyses. The sample consists of firm-year observations from 1998 to 2022, for Say-on-pay vote against (%) is from 2010-2022, and family firm status is based on the subsample with family firm status data (as described in Section 2.3). Panel B compares means and medians of the variables by ZEP and non-ZEP observations, reporting *t*-statistics for differences in means and *z*-statistics from the rank sum test for differences in medians. Definitions of all variables are provided in Appendix A.

Table 2. Persistence of Zero-equity pay

	Empirical		Random		
(1)	(2)	(3)	(4)	(5)	(6)
K	Mean	Std Dev	Mean	Std Dev	Obs.
1	1.000	0.000	1.000	0.000	1457
2	0.299	0.346	0.162	0.223	1392
3	0.151	0.285	0.030	0.101	1315
4	0.098	0.242	0.006	0.044	1257
5	0.071	0.212	0.001	0.022	1206
6	0.055	0.191	0.000	0.013	1142
7	0.042	0.171	0.000	0.006	1063
8	0.034	0.157	0.000	0.001	1002
9	0.029	0.150	0.000	0.000	944
10	0.025	0.142	0.000	0.000	879
11	0.023	0.136	0.000	0.000	829
12	0.021	0.130	0.000	0.000	777
13	0.017	0.116	0.000	0.000	729
14	0.013	0.103	0.000	0.000	678
15	0.011	0.091	0.000	0.000	618
16	0.008	0.082	0.000	0.000	572
17	0.007	0.081	0.000	0.000	518
18	0.006	0.076	0.000	0.000	471
19	0.005	0.070	0.000	0.000	413
20	0.005	0.069	0.000	0.000	378

Notes: Table 2 reports the empirical persistence measures for zero-equity pay (ZEP) observations at the firm-year level**,** comparing actual firm behavior with that in randomized economies, where ZEP status is reshuffled each year to eliminate temporal correlation. The persistence measure for the ZEP policy is defined as: $Per\text{ZEP}_k = \left(\frac{1}{|A_k|}\right)\sum_{i\in A_k} S_{i,k}^{Per\text{ZEP}}/S_{i,k}^{ZEP}$ where A_k is the set of firms with at least one k-year sequence of observations that begins with a ZEP observation $S_{i,k}^{ZEP}$ is the number of k-year sequences for firm i that begin with a ZEP observation and $S_{i,k}^{Per\text{ZEP}}$ is the number of k-year sequences for a firm i that are all ZEP observations. Column (1) lists the number of consecutive years (k) being analyzed. Columns (2) and (3) report the mean and standard deviation of observed ZEP persistence in the Incentive Lab sample. Columns 4 and 5 present the mean and standard deviation of the persistence measure in percentage points over five hundred randomly generated economies.

Table 3. Determinants of Zero-Equity Pay

	Dependent variable: Zero-equity pay (0/1)			
	(1)	(2)	(3)	(4)
	Full sample	CEO ownership < 1%	Non-family firms (when family status data are available)	Excludes ZEP years covered by a prior equity grant (2006 onward)
ROA	0.064	0.034	0.075	0.004
	(0.041)	(0.040)	(0.048)	(0.044)
Annual stock return	-0.001	0.002	0.002	-0.007
	(0.004)	(0.005)	(0.006)	(0.005)
Sales growth	0.000*	0.000**	0.000	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
R&D	-2.658**	-3.153**	-1.890	-3.260**
	(1.147)	(1.377)	(1.478)	(1.649)
CAPX	-0.172*	-0.183**	-0.265***	-0.035
	(0.093)	(0.093)	(0.096)	(0.098)
Book leverage	-0.021	-0.027	0.015	-0.009
	(0.020)	(0.020)	(0.021)	(0.020)
Firm age	-0.001***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Daily stock return volatility	0.548*	0.585*	0.782**	0.642*
	(0.296)	(0.312)	(0.383)	(0.338)
Assets	-0.062***	-0.086***	-0.061**	-0.066**
	(0.021)	(0.022)	(0.030)	(0.027)
Assets square	0.003***	0.004***	0.003*	0.003**
	(0.001)	(0.001)	(0.002)	(0.001)
Business segment	0.000	0.000	-0.001*	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Institutional ownership	-0.151***	-0.130***	-0.054**	-0.133***
	(0.018)	(0.018)	(0.022)	(0.018)
S&P 1500	-0.057***	-0.058***	-0.023**	-0.041***
	(0.009)	(0.008)	(0.009)	(0.008)
CEO tenure	-0.007	-0.002	-0.018***	0.001
	(0.006)	(0.006)	(0.006)	(0.006)
CEO ownership	0.011***	-0.061***	0.014***	0.009***
	(0.001)	(0.016)	(0.004)	(0.002)
Obs.	31,479	26,140	13,793	20,016
Adjusted R2	0.121	0.087	0.082	0.110
Industry & year FEs	Yes	Yes	Yes	Yes

Notes: Table 3 presents the regression results on the determinants of zero-equity pay (ZEP) observations. The dependent variable is the *zero-equity pay* indicator, which equals one if a firm does not report any equity grants in the Summary Compensation Table or Plan-Based Award Table in a given year, and zero otherwise. Columns 1, 2, and 3 include the full sample, a subsample of firm-years where the CEO holds less than one percent equity ownership, and a subsample of non-family firm-years (based on the subset where family firm status can be inferred; see Section 2.3 for details), respectively, over the period 1998–2022. The subsample in Column 4 excludes ZEP firm-years covered by any prior equity grants, with a sample period from 2006–2022. Year and industry fixed effects (based on two-digit SIC codes) are included in all regressions. Standard errors are clustered at the firm level and reported in parentheses. All independent variables, except for the S&P 1500 indicator, are calculated in the prior year. Definitions for all independent variables are provided in Appendix A. Statistical significance is indicated by *, **, and *** for the 10%, 5%, and 1% levels, respectively.

Table 4. Determinants of First-Time Zero-Equity Pay Adoption

	Dependent variable: ZEP entry (0/1)			
	(1)	(2)	(3)	(4)
	Full sample	CEO ownership < 1%	Non-family firms (when family status data are available)	Full sample(Δ)
ROA	-0.017	-0.002	-0.031	-0.008
	(0.027)	(0.029)	(0.036)	(0.047)
Annual stock return	-0.003	-0.004	0.005	0.005
	(0.005)	(0.005)	(0.007)	(0.004)
Sales growth	0.000	0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
R&D	-1.802**	-1.394	-1.563	-0.827
	(0.771)	(0.858)	(1.134)	(1.212)
CAPX	-0.198***	-0.180***	-0.204***	-0.013
	(0.052)	(0.054)	(0.073)	(0.091)
Book leverage	0.024*	0.019	0.039**	0.004
	(0.012)	(0.012)	(0.018)	(0.031)
Firm age	-0.000**	-0.000**	-0.000	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Daily stock return volatility	1.329***	1.389***	0.733**	0.811***
	(0.258)	(0.269)	(0.363)	(0.280)
Assets	-0.027**	-0.018	-0.045**	-0.011
	(0.012)	(0.013)	(0.020)	(0.010)
Assets square	0.001**	0.001	0.002**	-0.000***
	(0.001)	(0.001)	(0.001)	(0.000)
Business segment	0.000	0.001*	0.000	0.001
	(0.000)	(0.000)	(0.001)	(0.001)
Institutional ownership	-0.014	-0.015	-0.001	-0.006
	(0.009)	(0.010)	(0.014)	(0.018)
S&P 1500	-0.013***	-0.011**	-0.009	-0.017***
	(0.004)	(0.004)	(0.007)	(0.005)
CEO tenure	-0.015***	-0.013***	-0.011**	-0.021***
	(0.003)	(0.003)	(0.005)	(0.004)
CEO ownership	0.004***	-0.003	0.004	0.003*
	(0.001)	(0.010)	(0.003)	(0.002)
Obs.	14,800	13,099	7,308	13,081
Adjusted R^2	0.052	0.048	0.042	0.040
Industry & year FEs	Yes	Yes	Yes	Yes

Notes: Table 4 presents regression results for the determinants of firms' first entry into zero-equity pay (ZEP). The dependent variable, the *ZEP entry* indicator, equals one for firm-year observations in which the firm, for the first time, forgos CEO equity grants and zero otherwise. Firm-years after the first ZEP entry are dropped from the analysis. Columns 1, 2, and 3 include a full sample, a subsample of firms with less than one percent CEO ownership, and a subsample of non-family firm-years (based on the subset where family firm status can be inferred; see Section 2.3 for details), respectively. The sample period spans from 1998 to 2022. Column 4 presents results when we regress the entry indicatory on changes in independent variables. Year and industry fixed effects (based on two-digit SIC codes) are included in all regressions. Standard errors are clustered at the firm level and reported in parentheses. All independent variables, except for the S&P 1500 indicator, are calculated in the prior year. Definitions for all independent variables are provided in Appendix A. Statistical significance is indicated by *, **, and *** for the 10%, 5%, and 1% levels, respectively.

Table 5. Zero-Equity Pay and Corporate Governance

	Dependent variable: Zero-equity pay (0/1)			
	(1)	(2)	(3)	(4)
	Full sample	CEO ownership < 1%	Non-family firms (when family status data are available)	Excludes ZEP years covered by a prior equity grant (2006 onward)
ROA	0.050	0.015	0.089*	0.002
	(0.044)	(0.043)	(0.051)	(0.044)
Annual stock return	-0.001	0.002	0.002	-0.008
	(0.005)	(0.005)	(0.006)	(0.005)
Sales growth	0.000***	0.000***	0.000*	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
R&D	-1.891	-2.486	-0.181	-2.753
	(1.392)	(1.667)	(1.787)	(1.683)
CAPX	-0.164	-0.162	-0.237**	-0.033
	(0.101)	(0.099)	(0.097)	(0.101)
Book leverage	0.003	-0.004	0.032	-0.002
	(0.021)	(0.020)	(0.023)	(0.020)
Firm age	-0.001***	-0.001***	-0.001**	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Daily stock return volatility	0.496	0.571*	0.525	0.648*
	(0.316)	(0.330)	(0.399)	(0.349)
Assets	-0.064***	-0.092***	-0.050	-0.063**
	(0.024)	(0.025)	(0.034)	(0.027)
Assets square	0.003**	0.005***	0.003	0.003**
	(0.001)	(0.001)	(0.002)	(0.001)
Business segment	-0.000	-0.000	-0.002**	0.000
	(0.001)	(0.001)	(0.001)	(0.001)
Institutional ownership	-0.132***	-0.114***	-0.032	-0.115***
	(0.019)	(0.019)	(0.023)	(0.018)
S&P 1500	-0.048***	-0.048***	-0.023**	-0.029***
	(0.009)	(0.008)	(0.009)	(0.008)
CEO tenure	-0.003	0.003	-0.014*	-0.003
	(0.006)	(0.007)	(0.007)	(0.006)
CEO ownership	0.010***	-0.066***	0.012***	0.008***
	(0.002)	(0.017)	(0.004)	(0.002)
CEO duality	0.035***	0.030***	0.010	0.030***
	(0.008)	(0.008)	(0.009)	(0.008)
Independent board %	-0.259***	-0.230***	-0.186***	-0.179***
	(0.032)	(0.032)	(0.040)	(0.036)
Board size	-0.008	-0.011*	0.001	-0.072***
	(0.007)	(0.007)	(0.007)	(0.016)
Obs.	26,934	22,354	12,044	19,108
Adjusted R^2	0.133	0.096	0.089	0.128
Industry & year FEs	Yes	Yes	Yes	Yes

Continued.

Table 5 continued.
Notes: Table 5 reports the relation between a firm's corporate governance and zero-equity pay (ZEP) observations. The dependent variable is the *zero-equity pay* indicator*,* which equals one if a firm reports no equity grants in the Summary Compensation Table or Plan-Based Award Table in a given year and zero otherwise. Columns 1, 2, and 3 include a full sample, a subsample of firms with less than one percent of CEO ownership, and a subsample of non-family firm-years (based on the subset where family firm status can be inferred; see Section 2.3 for details), respectively, and cover the sample period from 1998-2022. The subsample in column 4 excludes ZEP firm-year observations covered by any prior equity grants, and the sample period runs from 2006 to 2022. Year and industry fixed effects (based on two-digit SIC codes) are included in all regressions. Standard errors are clustered at the firm level and reported in parentheses. All independent variables, except for the S&P 1500 indicator, are calculated in the prior year. Definitions for all independent variables are provided in Appendix A. Statistical significance is indicated by *, **, and *** for the 10%, 5%, and 1% levels, respectively.

Table 6. Zero-equity Pay and Shareholder Activism

	Dependent variable: Zero-equity pay (0/1)			
	(1)	(2)	(3)	(4)
	Full sample	CEO ownership < 1%	Non-family firm (when family status data are available)	Excludes ZEP years covered by a prior equity grant (2006 onward)
SOP vote against in the top qrt.	-0.096**	-0.072	-0.068	-0.140**
× ZEP_{t-1}	(0.048)	(0.058)	(0.111)	(0.054)
ZEP^{t-1}	0.529***	0.464***	0.457***	0.489***
	(0.030)	(0.037)	(0.081)	(0.035)
SOP vote against in the top qrt.	0.012***	0.005	0.007	0.013***
	(0.004)	(0.004)	(0.006)	(0.004)
ROA	0.005	0.008	0.092*	-0.037
	(0.031)	(0.032)	(0.047)	(0.028)
Annual stock return	-0.009	-0.009	-0.009	-0.007
	(0.006)	(0.006)	(0.007)	(0.006)
Sales growth	0.000*	0.000	-0.000	0.000*
	(0.000)	(0.000)	(0.000)	(0.000)
R&D	-0.200	-0.987	-2.053	0.475
	(1.242)	(1.420)	(1.598)	(1.223)
CAPX	0.028	-0.008	-0.120	0.052
	(0.079)	(0.075)	(0.085)	(0.072)
Book leverage	-0.002	-0.003	-0.011	-0.003
	(0.013)	(0.013)	(0.017)	(0.011)
Firm age	-0.000***	-0.000**	-0.000**	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Daily stock return volatility	0.427	1.090***	1.087*	0.456
	(0.368)	(0.411)	(0.579)	(0.341)
Assets	-0.003	-0.039*	-0.066	0.000
	(0.019)	(0.020)	(0.041)	(0.017)
Assets square	0.000	0.002*	0.004	-0.000
	(0.001)	(0.001)	(0.002)	(0.001)
Business segment	-0.001	-0.000	-0.001**	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Institutional ownership	-0.049***	-0.045***	-0.028	-0.022**
	(0.012)	(0.013)	(0.017)	(0.011)
S&P 1500	-0.014***	-0.016***	-0.012*	-0.007
	(0.005)	(0.005)	(0.007)	(0.005)
CEO tenure	0.007	0.008	-0.008	0.001
	(0.005)	(0.006)	(0.007)	(0.004)
CEO ownership	0.003**	-0.024*	-0.000	0.003**
	(0.001)	(0.014)	(0.003)	(0.001)
Obs.	9,906	8,621	4,204	9,776
Adjusted R^2	0.345	0.284	0.247	0.326
Industry & year FEs	Yes	Yes	Yes	Yes

Continued.

Table 6 continued.
Notes: Table 6 reports the relation between shareholder activism and zero-equity pay (ZEP) observations. The sample includes all firm-year observations from 2011 to 2022. The main independent variable, *SOP vote against in the top quartile*, equals one if the SOP vote against percentage exceeds the 75th percentile of the sample and zero otherwise. ZEP_{t-1} indicates the firm's zero-equity pay status in the prior year, which equals one if a firm reports no equity grants in the summary compensation table or plan-based award table in the prior year and zero otherwise. The dependent variable is *zero-equity pay* indicator*,* which equals one if a firm reports no equity grants in the summary compensation table or plan-based award table in a given year and zero otherwise. Columns 1, 2, and 3 include a full sample, a subsample of firms with less than one percent CEO ownership, and a subsample of non-family firm-years (based on the subset where family firm status can be inferred; see Section 2.3 for details), respectively. The subsample in column 4 excludes ZEP firm-year observations covered by prior equity grants and is from 2006 to 2022. Year and industry fixed effects (based on two-digit SIC codes) are included in all regressions. Standard errors are clustered at the firm level and reported in parentheses. All independent variables, except for the S&P 1500 indicator, are calculated in the prior year. Definitions for all independent variables are provided in Appendix A. Statistical significance is indicated by *, **, and *** for the 10%, 5%, and 1% levels, respectively.

Table 7. Zero-equity Pay and Public Attention

	Dependent variable: Zero-equity pay (0/1)			
	(1)	(2)	(3)	(4)
Comp. news (market)	-0.064***			
	(0.020)			
Comp. news (industry)		-0.037***		
		(0.011)		
Comp. news (firm)			-0.009*	
			(0.005)	
Number of Analysts				-0.010***
				(0.004)
ROA	0.059	0.062	0.068*	0.071*
	(0.040)	(0.040)	(0.040)	(0.041)
Annual stock return	-0.003	-0.003	-0.003	-0.001
	(0.004)	(0.004)	(0.004)	(0.004)
Sales growth	0.000	0.000*	0.000**	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)
R&D	-2.655**	-2.687**	-2.771**	-2.565**
	(1.147)	(1.145)	(1.142)	(1.145)
CAPX	-0.189**	-0.176*	-0.165*	-0.162*
	(0.093)	(0.092)	(0.092)	(0.093)
Book leverage	-0.024	-0.025	-0.025	-0.025
	(0.020)	(0.020)	(0.020)	(0.020)
Firm age	-0.001***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Daily stock return volatility	0.644***	0.685***	0.697***	0.518*
	(0.211)	(0.213)	(0.213)	(0.297)
Assets	-0.065***	-0.066***	-0.068***	-0.062***
	(0.021)	(0.021)	(0.021)	(0.021)
Assets square	0.003***	0.003***	0.003***	0.003***
	(0.001)	(0.001)	(0.001)	(0.001)
Business segment	0.001	0.001	0.001	0.000
	(0.001)	(0.001)	(0.001)	(0.001)
Institutional ownership	-0.133***	-0.139***	-0.147***	-0.143***
	(0.015)	(0.014)	(0.013)	(0.018)
S&P 1500	-0.057***	-0.056***	-0.054***	-0.054***
	(0.009)	(0.009)	(0.009)	(0.009)
CEO tenure	-0.005	-0.006	-0.006	-0.006
	(0.006)	(0.006)	(0.006)	(0.006)
CEO ownership	0.011***	0.011***	0.011***	0.011***
	(0.001)	(0.001)	(0.001)	(0.001)
Obs.	31,479	31,479	31,479	31,479
Adjusted R^2	0.116	0.116	0.115	0.121
Industry FE	Yes	Yes	Yes	Yes
Year FE	No	No	No	Yes

Continued.

Table 7 continued.
Notes: Table 7 reports the relation between public attention and zero-equity pay (ZEP) observations. Public attention is measured by *comp. news (market)* in column 1, which is the annual proportion of all firms with CEO compensation news articles in Factiva relative to the total number of firms. *Comp. news (industry)* in column 2 is the annual proportion of firms within a three-digit SIC industry that have at least one CEO compensation news article in Factiva. *Comp. news (firm)* in column 3 is an indicator variable that equals one if Factiva covers at least one news article about the CEO compensation of the firm in a given year, and zero otherwise. *Number of Analysts* in column 4 is the number of analysts that provide forecasts for the firm, measured before the beginning of a fiscal year. The dependent variable is *zero-equity pay* indicator, which equals one if a firm reports no equity grants in the Summary Compensation Table or Plan-Based Awards Table in a given year, and zero otherwise. The sample period is from 1998 to 2022. Industry fixed effects (based on two-digit SIC codes) are included in all regressions. A year fixed effect is included in column (4). Standard errors are clustered at the firm level and reported in parentheses. All independent variables are calculated using values from the prior year. Definitions for all independent variables are provided in Appendix A. Statistical significance is indicated by *, *, and *** for the 10%, 5%, and 1% levels, respectively.

Table 8: Comparison of CEO Non-Equity Pay Across Firm-Years with and without Zero-Equity Pay

	Mean			Median		
	ZEP	non-ZEP	Diff. in means (ZEP – non-ZEP)	ZEP	Non-ZEP	Diff. in medians (ZEP – non-ZEP)
Total cash / Total comp.	35.368	30.113	5.256***	32.188	28.303	3.885**
Long-term cash / Total comp.	11.344	13.182	-1.838***	0.000	10.359	-10.359***
Short-term cash / Total comp.	23.784	16.934	6.850***	15.818	14.013	1.804***
Salary / Total comp.	50.091	21.503	28.588***	46.635	15.282	31.353***
Other compensation / Total comp.	10.897	6.230	4.667***	2.522	2.138	0.384***
Total compensation/ Total assets	0.151	0.196	-0.045***	0.065	0.098	-0.034***
Obs.	4,143	27,336				

Notes: Table 8 presents the differences in means and medians of CEO non-equity compensation components between firm-year observations with and without zero-equity pay (ZEP). The statistical significance for the difference in means (medians) is derived from t-tests (z-statistics from rank sum tests). Each pay component is scaled by total compensation, respectively.le 8

Table 9: Zero-Equity Pay and Future Performance

Panel A: Future annual stock return

	Full sample		Excludes ZEP years covered by a prior equity grant (2006 onward)		Full sample		Excludes ZEP years covered by a prior equity grant (2006 onward)	
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Dependent variable:	1-year forward annual stock return				3-year forward annual stock return			
Zero-equity pay (0/1)	-0.017*	-0.019*	-0.022*	-0.024*	-0.009	-0.009	-0.002	-0.006
	(0.009)	(0.010)	(0.013)	(0.013)	(0.007)	(0.007)	(0.011)	(0.011)
Firm characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Gov. variables	No	Yes	No	Yes	No	Yes	No	Yes
Industry & year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	29,130	25,015	18,174	17,439	24,887	21,293	14,829	14,272
Adjusted R^2	0.191	0.217	0.238	0.239	0.152	0.142	0.134	0.137
Panel B: Future ROA								
Dependent variable:	1-year forward ROA				3-year forward ROA			
Zero-equity pay (0/1)	0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.001
	(0.002)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.003)	(0.003)
Firm characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Gov. variables	No	Yes	No	Yes	No	Yes	No	Yes
Industry & year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	29,202	25,145	18,600	17,797	29,259	25,190	18,622	17,818
Adjusted R^2	0.592	0.600	0.588	0.596	0.586	0.594	0.594	0.603

Notes: Table 9 reports the regression results of future performance on ZEP status. Performance is measured in two metrics: (1) annual stock return calculated by compounding CRSP daily return over the fiscal year, and (2) ROA calculated as the operating income before depreciation scaled by total assets. The 3-year forward measure is the average annual stock return or ROA over the next three years. *Zero-equity pay* is a binary indicator that equals one if a firm reports no equity grants in the summary compensation table or plan-based award table in a given year and zero otherwise. The regressions also include firm characteristics, as in Table 3, and governance variables, as in Table 5. Columns (1) and (2) present results for the full sample, and columns (3) and (4) exclude ZEP year observations covered by prior equity grants, respectively. The sample period is from 1998-2022 for columns 1-2 and 2006-2022 for columns 3-4, respectively. Year and industry fixed effects (based on two-digit SIC codes) are included in all regressions. Standard errors are clustered at the firm level and reported in parentheses. All independent variables, except for the S&P 1500 and *zero-equity pay* indicators, are calculated in the prior year. Definitions for all independent variables are provided in Appendix A. Statistical significance is indicated by *, **, and *** for the 10%, 5%, and 1% levels, respectively.

Table 10: Zero-Equity Pay and Pay for Performance Sensitivity

Dependent variable: CEO total compensation

	Full sample		CEO ownership < 1%		Non-family firm		Excludes ZEP years covered by a prior equity grant (2006 onward)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$ROA_t \times ZEP$	0.379	0.310	0.725**	0.697	-0.146	-0.590	1.036**	0.975**
	(0.289)	(0.366)	(0.344)	(0.435)	(0.483)	(0.559)	(0.469)	(0.482)
Stock $return_t \times ZEP$	-0.052	-0.038	-0.081**	-0.073	-0.062	-0.034	-0.184***	-0.173**
	(0.032)	(0.042)	(0.041)	(0.055)	(0.055)	(0.077)	(0.065)	(0.069)
$ROA_{t-1} \times ZEP$	0.277	0.397	0.177	0.234	0.311	0.657	0.023	0.093
	(0.300)	(0.382)	(0.365)	(0.489)	(0.394)	(0.463)	(0.549)	(0.571)
Stock $return_{t-1} \times ZEP$	-0.035	-0.014	-0.050	-0.042	-0.003	0.010	-0.182**	-0.154*
	(0.030)	(0.039)	(0.038)	(0.050)	(0.041)	(0.057)	(0.077)	(0.081)
ROA_t	0.337***	0.308***	0.404***	0.401***	0.493***	0.524***	0.240**	0.242**
	(0.098)	(0.108)	(0.106)	(0.117)	(0.126)	(0.129)	(0.117)	(0.122)
Stock $return_t$	0.174***	0.188***	0.170***	0.184***	0.179***	0.174***	0.191***	0.187***
	(0.011)	(0.012)	(0.012)	(0.013)	(0.014)	(0.015)	(0.014)	(0.014)
ROA_{t-1}	0.170*	0.247**	0.209**	0.287**	-0.088	-0.122	0.172	0.257**
	(0.098)	(0.109)	(0.105)	(0.117)	(0.123)	(0.134)	(0.121)	(0.124)
Stock $return_{t-1}$	0.132***	0.150***	0.123***	0.139***	0.136***	0.136***	0.183***	0.186***
	(0.010)	(0.011)	(0.011)	(0.012)	(0.013)	(0.014)	(0.013)	(0.013)
ZEP	-0.890***	-0.975***	-0.870***	-0.943***	-0.659***	-0.696***	-1.180***	-1.179***
	(0.051)	(0.060)	(0.056)	(0.067)	(0.084)	(0.104)	(0.090)	(0.094)
Firm characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Gov. variables	No	Yes	No	Yes	No	Yes	No	Yes
Industry & year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	29,918	25,633	24,921	21,320	13,778	12,034	18,996	18,129
Adjusted R^2	0.622	0.604	0.633	0.608	0.684	0.667	0.523	0.533

Continued.

Table 10 continued.

Notes: Table 10 presents the relation between zero-equity pay (ZEP) observations and CEO Pay-Performance Sensitivity (PPS). The dependent variable is total CEO compensation. The key independent variables are the interactions between ROA or stock return at year *t* and year *t−1* with ZEP firms at year *t*. ROA is calculated as the operating income before depreciation scaled by total assets. Annual stock return is calculated by compounding CRSP's daily return over the fiscal year. *ZEP* is a binary indicator that equals one if a firm reports no equity grants in the summary compensation table or plan-based award table in a given year and zero otherwise. The regressions also include firm characteristics, as in Table 3, and governance variables, as in Table 5. Columns 1-2 include the full sample, columns 3-4 include a subsample of firms with less than 1% CEO ownership, and columns 5-6 include a subsample of non-family firm-years (based on the subset where family firm status can be inferred; see Section 2.3 for details), respectively. The subsample in columns 7-8 excludes ZEP firm-year observations covered by prior equity grants. The sample period is from 1998-2022 for columns 1-6 and 2006-2022 for columns 7-8, respectively. Year and industry fixed effects (based on two-digit SIC codes) are included in all regressions. Standard errors are clustered at the firm level and reported in parentheses. All independent variables, except for the S&P 1500 and *ZEP* indicators, are calculated in year *t-1*. Definitions for all independent variables are provided in Appendix A. Statistical significance is indicated by *, **, and *** for the 10%, 5%, and 1% levels, respectively.

Internet Appendix

"Why Do Some Firms Forgo Equity-Based Equity Compensation?"

Internet Appendix A1. Robustness checks

Table IA1. Robustness Checks

	Dependent variable: Zero-equity pay (0/1)		
	(1)	(2)	(3)
	Excluding CEO turnover years	Post-financial crisis years	With firm FEs
ROA	0.053	0.014	-0.025
	(0.042)	(0.054)	(0.039)
Annual stock return	-0.003	-0.001	-0.001
	(0.004)	(0.006)	(0.004)
Sales growth	0.000**	0.000***	0.000
	(0.000)	(0.000)	(0.000)
R&D	-2.410**	-3.770*	-3.337***
	(1.210)	(2.139)	(1.095)
CAPX	-0.164*	-0.053	-0.108
	(0.095)	(0.125)	(0.095)
Book leverage	-0.018	-0.008	0.023
	(0.020)	(0.025)	(0.023)
Firm age	-0.001***	-0.001***	-0.007***
	(0.000)	(0.000)	(0.001)
Daily stock return	0.715**	0.634	0.778***
	(0.300)	(0.394)	(0.194)
Assets	-0.054**	-0.072**	-0.126***
	(0.022)	(0.033)	(0.026)
Assets square	0.003**	0.004**	0.007***
	(0.001)	(0.002)	(0.002)
Business segment	0.000	0.000	-0.001
	(0.001)	(0.001)	(0.001)
Institutional ownership	-0.155***	-0.171***	-0.036***
	(0.019)	(0.021)	(0.012)
S&P 1500	-0.056***	-0.058***	
	(0.009)	(0.010)	
CEO tenure	-0.009	-0.001	-0.006
	(0.007)	(0.008)	(0.005)
CEO ownership	0.011***	0.008***	0.006***
	(0.001)	(0.002)	(0.001)
Obs.	30,360	16,434	31,479
Adjusted R^2	0.123	0.127	0.341
Industry & year FEs	Yes	Yes	No
Firm & year FEs	No	No	Yes

Notes: Table IA1 presents the regression results on the determinants of zero-equity pay (ZEP) observations. The dependent variable is the *zero-equity pay* indicator**,** which equals one if a firm does not report any equity grants in the Summary Compensation Table or Plan-Based Award Table in a given year, and zero otherwise. Columns 1 and 2 use subsamples that exclude, respectively, firm-year observations in which a new CEO was hired and the post-financial crisis period (2010-2022). Column 3 reports results for the full sample from 1998 to 2022 and includes firm fixed effects. Year and industry fixed effects (based on two-digit SIC codes) are included in all regressions. Standard errors are clustered at the firm level and reported in parentheses. All independent variables, except for the S&P 1500 indicator, are calculated in the prior year. Definitions for all independent variables are provided in Appendix A. Statistical significance is indicated by *, **, and *** for the 10%, 5%, and 1% levels, respectively.

Table IA2: Post-2006 Sample after the SEC's CEO Pay Disclosure Reform

	Dependent variable: Zero-equity pay (0/1))				
	(1)	(2)	(3)	(4)	(5)
	Baseline	With gov. control	Shareholder activism	Public attention	
SOP vote against in the top qrt. × ZEP_{t-1}			-0.096**		
			(0.048)		
Comp. news (market)				-0.038*	
				(0.021)	
Number of analysts					-0.009**
					(0.004)
ROA	0.048	0.035	0.005	0.052	0.054
	(0.043)	(0.047)	(0.031)	(0.043)	(0.043)
Annual stock return	-0.004	-0.003	-0.009	-0.006	-0.003
	(0.005)	(0.005)	(0.006)	(0.004)	(0.005)
Sales growth	0.000	0.000**	0.000*	0.000	0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R&D	-2.194*	-1.274	-0.200	-2.065*	-2.136*
	(1.173)	(1.465)	(1.242)	(1.173)	(1.170)
CAPX	-0.122	-0.112	0.028	-0.119	-0.112
	(0.098)	(0.109)	(0.079)	(0.097)	(0.098)
Book leverage	-0.025	0.003	-0.002	-0.025	-0.029
	(0.021)	(0.021)	(0.013)	(0.020)	(0.021)
Firm age	-0.001***	-0.001***	-0.000***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Daily stock return volatility	0.686**	0.545	0.427	0.725***	0.650**
	(0.325)	(0.350)	(0.368)	(0.226)	(0.325)
Assets	-0.050**	-0.052**	-0.003	-0.056***	-0.050**
	(0.022)	(0.024)	(0.019)	(0.021)	(0.022)
Assets square	0.002**	0.003*	0.000	0.003**	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Business segment	0.001	0.000	-0.001	0.001**	0.001
	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)
Institutional ownership	-0.153***	-0.133***	-0.049***	-0.140***	-0.144***
	(0.018)	(0.019)	(0.012)	(0.015)	(0.019)
S&P 1500	-0.054***	-0.042***	-0.014***	-0.054***	-0.051***
	(0.009)	(0.009)	(0.005)	(0.009)	(0.009)
CEO tenure	-0.011*	-0.008	0.007	-0.010*	-0.011*
	(0.006)	(0.007)	(0.005)	(0.006)	(0.006)
CEO ownership	0.011***	0.010***	0.003**	0.011***	0.011***
	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)
CEO duality		0.035***			
		(0.008)			
Independent board %		-0.268***			
		(0.036)			
Board size		-0.019**			
		(0.009)			
ZEP_{t-1}			0.529***		
			(0.030)		
SOP vote against in the top qrt.			0.012***		
			(0.004)		
Obs.	26,973	22,977	9,906	26,973	26,973
Adjusted R^2	0.125	0.136	0.345	0.121	0.126
Industry FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	No	Yes

(Continued)

Table IA2 continued.

Notes: Table IA2 reports regression results on the determinants of zero-equity pay (ZEP) observations using the post-2006 sample period (2007–2022). Columns 1, 2, and 3 replicate the full-sample specifications from Column 1 of Tables 3, 5, and 6, respectively. Columns 4 and 5 replicate the full-sample specifications from Columns 1 and 4 of Table 7. The dependent variable is the *zero-equity pay* indicator**,** which equals one if a firm does not report any equity grants in the Summary Compensation Table or Plan-Based Award Table in a given year, and zero otherwise. Year and industry fixed effects (based on two-digit SIC codes) are included in all regressions. Standard errors are clustered at the firm level and reported in parentheses. All independent variables, except for the S&P 1500 indicator, are calculated in the prior year. Definitions for all independent variables are provided in Appendix A. Statistical significance is indicated by *, **, and *** for the 10%, 5%, and 1% levels, respectively.

Internet Appendix A2. Evidence from the EDGAR Sample

Since the Incentive Lab dataset focuses on the larger U.S. firms, the observed zero-equity pay (ZEP) trend in this sample may not fully reflect compensation practices among smaller or mid-sized companies. To provide a more comprehensive analysis across firms of varying sizes, we use parsed data on the Summary Compensation Table, sourced from DirectEdgar's processing of all proxy filings from 2006 to 2022. After integrating relevant firm and CEO characteristics from various data sources, as detailed in Section 2, the final sample consists of 6,284 unique firms with more than 47,000 firm-year observations. About 39.58% of these firms skipped equity pay at least one firm-year during the sample period.

ZEP trends in EDGAR sample

Figure IA1A presents the annual trend in the percentage of firm-year observations with zero-equity pay. Following the regulatory changes in 2006, on average, 15.4% of firm-years in the EDGAR sample skipped equity-based compensation**,** compared to just 9.3% in the Incentive Lab sample.[13] The proportion of ZEP firm-year observations peaked during the financial crisis years of 2009–2010, reaching 20.77% and 20.98%, respectively. This spike is likely attributable to increased market volatility and a temporary shift in preference toward cash-based over performance-based pay. After the financial crisis, the percentage of firm-years skipping equity grants gradually declined, with about 12% of firm-year observations reporting no equity compensation in 2021 and 2022. These findings indicate that a significantly higher number of firm-years in the larger sample avoid equity-based compensation for CEOs, compared to the Incentive Lab sample. We find a similar trend in the subsample of firms with CEO equity ownership below one percent.

We also compare the percentages of ZEP firms in the full sample and the sample of CEO equity ownership of less than one percent. Unreported findings indicate that ZEP firm-year observations make up 15.35% of the full sample, compared to 12.60% for firms where CEO ownership is less than one percent. This trend, consistent with Incentive Lab findings, suggests that high CEO equity ownership is unlikely to be the driving factor behind ZEP design. Figure IA1B shows the distribution of ZEP frequency across EDGAR firms. Approximately 60.4% of firms never skip CEO equity pay, while 17.4% have a single ZEP year. The frequency declines monotonically with the number of ZEP years, consistent with the pattern observed in the Incentive lab sample.

Figure IA1C displays the industry distribution of ZEP firm-year observations. The prevalence of ZEP firm-years varies significantly by industry, with the finance and consumer nondurables sectors having the highest proportion (21.86% and 20.57%, respectively) and utilities the lowest (4.83%).

Figure IA1D illustrates the annual trend in the proportion of ZEP firm-years from 2006 to 2022**,** comparing those included in the S&P 1500 index with those that are not. The patterns are similar to those observed in the Incentive Lab sample. Firms outside the S&P 1500 consistently have a higher percentage of ZEP firm-year observations than those within. The percentage of ZEP firm-years outside the S&P 1500 peaked around 2009–2010 at nearly 28% and then gradually declined to 17% by 2022. In contrast, the percentage of ZEP firms within the S&P 1500 remained relatively low and stable, ranging from 3-8% over the period.

To analyze the influence of firm size on ZEP observations, we identify all firms in the EDGAR sample at the start of fiscal year 2022, sort them in ascending order based on total assets, and divide them into terciles. We focus on firms in the lowest tercile (smallest size), tracking these firms backward to 2006 and excluding firm-year observations if the firm did not exist in a prior year. The resulting sample contains 1,005 unique firms and 7,505 firm-year observations. Figure IA2A shows that firm-years associated with smaller firms exhibit ZEP at a rate of 24.55% compared to 15.4% in the full EDGAR sample. We find a similar trend in the subsample of firms with CEO equity ownership below one percent. Additionally, in untabulated results, we find that smaller firms with CEO equity ownership below one percent have a higher rate of ZEP observations (21.89%) compared to those in the full EDGAR sample (12.60%). Figure IA2B

[13] To compare with the Edgar sample, we used the Summary Compensation Table to calculate the percentage of ZEP observations in the Incentive Lab sample.

presents the distribution of ZEP observations among smaller firms. Approximately 51.2% of firms never skip equity compensation for their CEOs, while 20% report a single year without equity pay. The incidence of ZEP decreases steadily as the number of ZEP years increases, mirroring the trend observed in the Incentive Lab sample. Figure IA2C further emphasizes that smaller firms outside the S&P 1500 experience higher rates of ZEP observations (24.55%) compared to those in the full sample (18.25%). Collectively, these findings suggest that ZEP observations are more prevalent in smaller firms.

Multivariate Analyses

In this section, we re-estimate the baseline model from Table 3 Column 1 using the EDGAR sample. As in the previous analysis, the dependent variable is the ZEP indicator. We present the regression results for the full sample in Column 1 of Table IA3 and for the subsample of firm-years where CEO ownership is less than one percent in Column 2.

Our prior in Section 4.2 is that firms with poorer prior performance will be less likely to skip equity pay for their CEOs in a given year. We find evidence that poor stock return or lower sales growth in the prior year is positively associated with the likelihood of firms paying equity grants. However, ROA is significantly positively related to the likelihood of skipping equity grants, which is inconsistent with this argument. Furthermore, firms with lower R&D investments are more likely to skip equity compensation, consistent with risk-taking incentives. However, firms with higher leverage are more likely to exhibit ZEP observations, lowering their risk-taking appetite. Firm age is negative and significant only in Columns 1 and 2. Firms are expected to avoid equity-based pay when stock prices are less informative. Consistent with the informativeness argument, we find that daily stock return volatility—used as a proxy for stock price informativeness—is negatively associated with ZEP firm-year observations. However, ZEP firm-years also show a convex size relationship, inconsistent with the prior of the price informativeness argument. ZEP firm-years are associated with lower institutional ownership and are less likely to be S&P 1500 constituents, supporting the public attention hypothesis. CEO tenure and CEO ownership are positively related to the likelihood of a ZEP observation, suggesting that alignment through ownership may reduce the need for additional equity incentives.

The inclusion of governance variables in Column 3 further refines the analysis. We expect that more independent boards and those with less powerful CEOs are less likely to skip equity pay for their CEOs. Consistent with CEO power theory, we find that firms with high CEO duality, smaller boards, and fewer independent directors are more likely to skip equity compensation. Column 4 introduces the variable for shareholder activism, measured by SOP vote against %, where a firm is coded as one if the SOP vote against percentage exceeds the 75th percentile value of the sample, zero otherwise. The interaction between the SOP vote against % in the top quartile and ZEP status in the prior year (ZEP_{t-1}) yields a negative and significant coefficient similar to Table 6. This result suggests that firms are less likely to continue ZEP in response to prior shareholder opposition.

In Column 5, we examine the entry decision of EDGAR firms transitioning from equity-granting to ZEP. The dependent variable, entry *indicator*, is set to one for firm-year observations where a firm first excludes equity grants from its CEO pay structure. The regression follows the same design and includes the same set of control variables as the baseline regression in Table 4 Column 1. Firms with higher ROA but lower stock returns are more likely to transition into ZEP, as are younger firms and firms with lower R&D investment. Consistent with prior results, firm-years with high return volatility, lower institutional ownership, and non-S&P 1500 status are more likely to initiate ZEP. Additionally, short-tenured CEOs and those with higher ownership stakes are more likely to be associated with ZEP adoption**.**

Overall, the findings based on Edgar's sample suggest that firms with prior poor stock performance, limited growth potential, reduced oversight from institutional investors and the public, and high CEO ownership are more likely to initiate ZEP.

Figure IA1a. Annual Trend of Zero-equity pay (EDGAR sample)

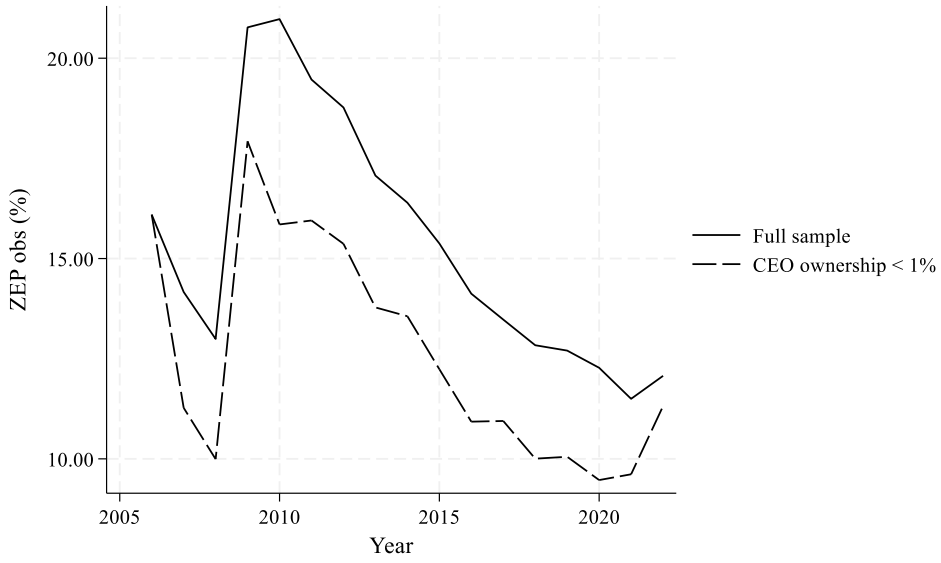
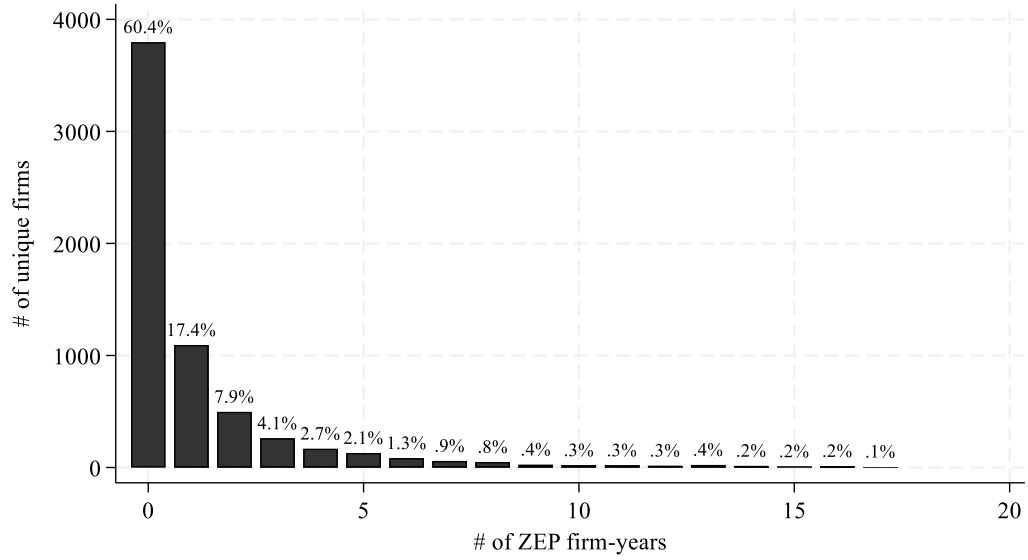


Figure IA1b. Distribution of Firms by Number of Zero-Equity Pay Years (EDGAR Sample)



(Figure IA1 continued.)

Figure IA1c. The Within-Industry Distribution of Zero-Equity Pay (EDGAR Sample)

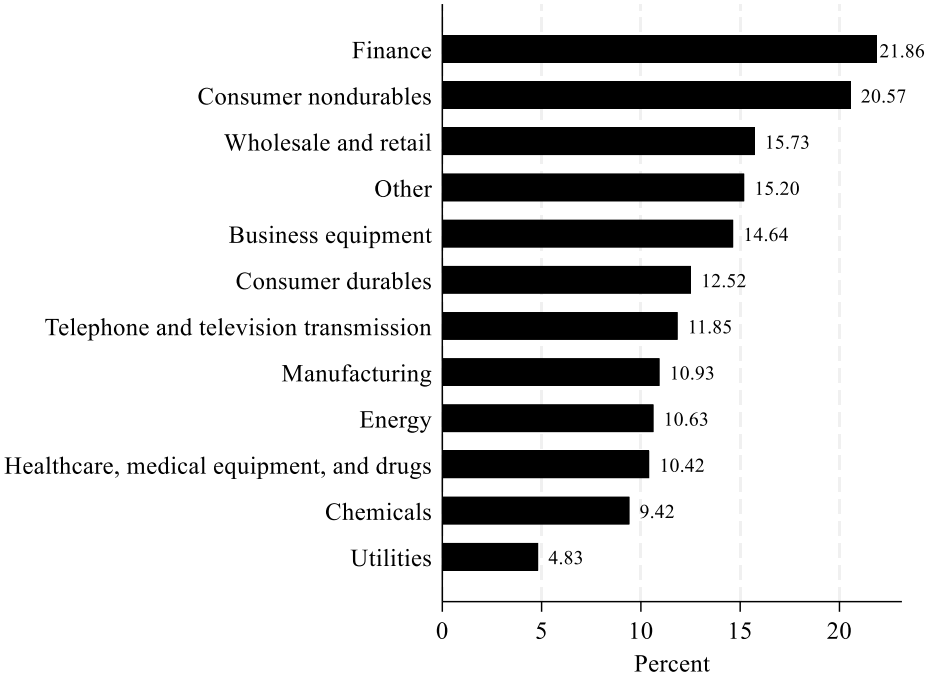
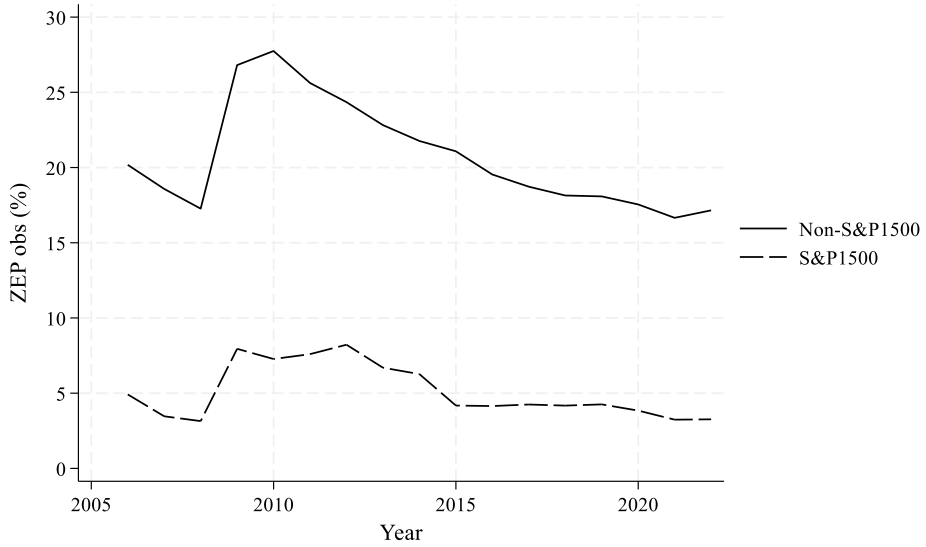


Figure IA1d. Annual Trend of Zero-Equity Pay by S&P 1500 Inclusion (EDGAR Sample)



Notes: Figure IA1a illustrates the annual trend in the proportion of ZEP observations from 2006 to 2022. The solid black line represents the full sample, while the dotted lines correspond to the subsamples of firms with CEO ownership below 1%. Figure IA1b plots the number of unique firms that experienced 0, 1, 2, and so on ZEP firm-years. Bar heights show unique firm counts, and the percentage displayed above each bar gives that group's share of the total sample. Figure IA1c presents each industry's percentage of total ZEP firm-year observations, arranged in descending order. Industries are categorized using the Fama-French 12 industry classification. Figure IA1d plots, for each year, the percentage of ZEP firm-year observations for firms in the S&P 1500 (dashed line) versus those not in the index (solid line). All figures are based on all public firms with needed data and Edger filings from 2006 to 2022 to perform our analysis.

Figure IA2a. Annual Trend of Zero-equity pay (EDGAR Sample - Small Firms)

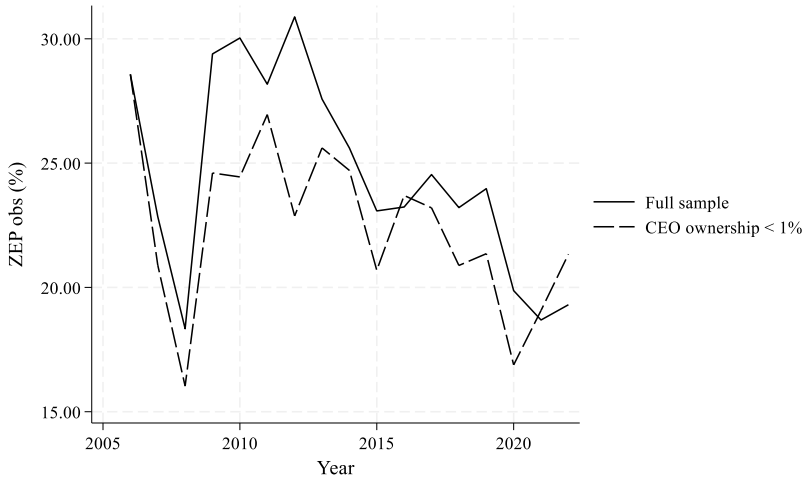
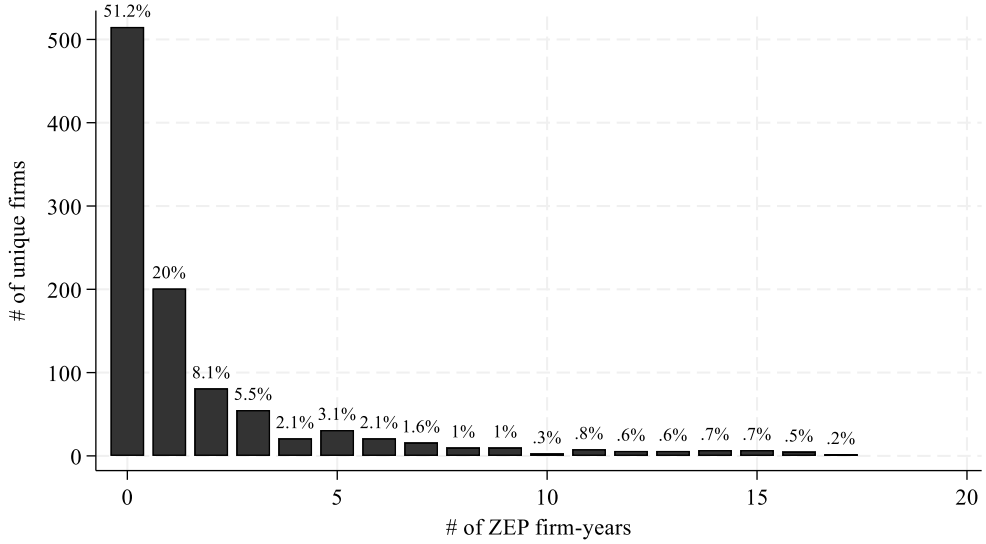
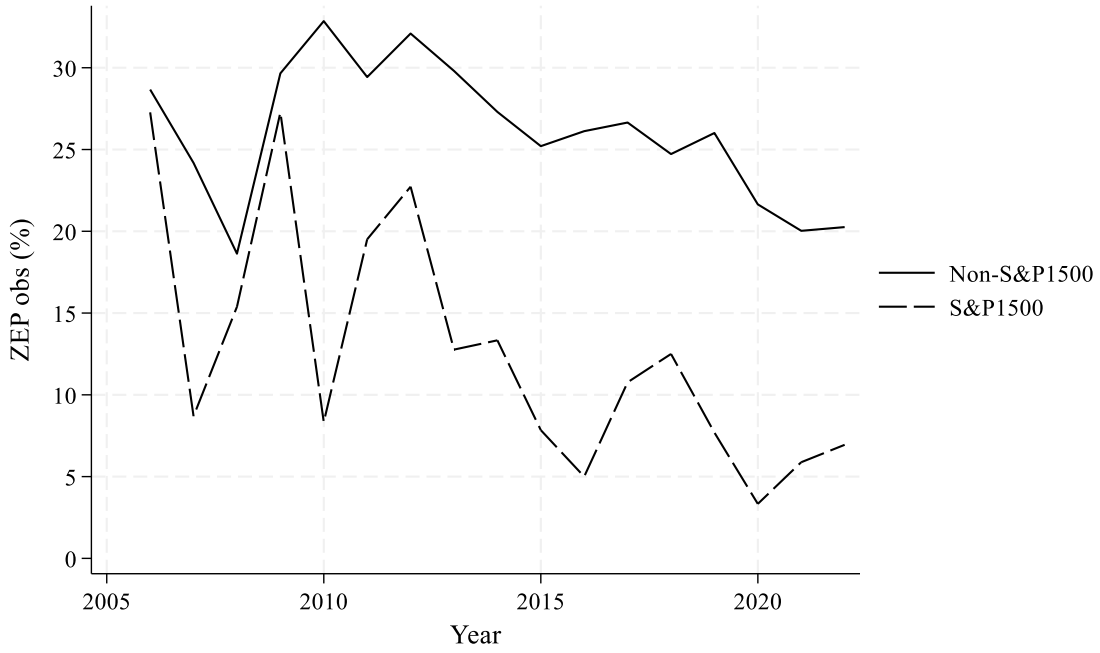


Figure IA2b. Firm-Level Distribution of Zero-equity pay Occurrence (EDGAR Sample - Small Firms)



(Figure IA2 continued.)

Figure IA2c. Annual Trend of ZEP by S&P 1500 Inclusion (EDGAR sample - Small Firms)



Notes: Figure IA2 represents the small firm subsample, defined as firms in the lowest tercile of total assets as of fiscal year 2022 in the SEC's EDGAR database. Figure IA2A presents the annual trend in zero-equity pay (ZEP) firm-year observations among small firms. Figure IA2B shows the distribution of firms by the number of years in which they exhibit ZEP observations. Percentage labels above each bar indicate the share of firms falling into each ZEP firm-year category. Figure IA2C displays the distribution of ZEP firm-year observations by S&P 1500 inclusion status. The sample period is 2006–2022.

Table IA3. Determinants of Zero-Equity Pay in the EDGAR Sample

Dependent variable:	Zero-equity pay (0/1)				ZEP Entry
	(1)	(2)	(3)	(4)	(5)
	Full	CEO ownership	Gov.	Shareholder	
SOP vote against in the top qrt. × ZEP_{t-1}				-0.196***	
				(0.028)	
ROA	0.173***	0.186***	0.155***	0.044**	0.040***
	(0.019)	(0.021)	(0.019)	(0.021)	(0.011)
Annual stock return	-0.015***	-0.016***	-0.015***	-0.010**	-0.009***
	(0.003)	(0.004)	(0.003)	(0.005)	(0.003)
Sales growth	-0.000**	-0.000	-0.000***	-0.000***	0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R&D	-0.910***	-1.040***	-0.875***	-0.552***	-0.156*
	(0.137)	(0.156)	(0.137)	(0.196)	(0.080)
CAPX	-0.114*	-0.069	-0.124*	-0.117*	-0.029
	(0.066)	(0.075)	(0.065)	(0.067)	(0.037)
Book leverage	0.028*	0.031**	0.027*	0.041***	0.005
	(0.015)	(0.016)	(0.015)	(0.014)	(0.007)
Firm age	-0.001***	-0.000**	-0.000	-0.000	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Daily stock return volatility	0.339*	0.501**	0.353*	0.049	0.869***
	(0.205)	(0.231)	(0.206)	(0.256)	(0.151)
Assets	-0.108***	-0.105***	-0.098***	-0.070***	-0.023***
	(0.012)	(0.013)	(0.012)	(0.011)	(0.006)
Assets square	0.005***	0.004***	0.005***	0.004***	0.001***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
Business segment	-0.000	-0.000	-0.000	-0.001*	-0.000
	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)
Institutional ownership	-0.139***	-0.120***	-0.132***	-0.071***	-0.032***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.004)
S&P 1500	-0.047***	-0.051***	-0.039***	-0.006	-0.011***
	(0.007)	(0.007)	(0.007)	(0.005)	(0.003)
CEO tenure	0.005***	0.008***	0.005***	0.002***	-0.001***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
CEO ownership	0.004***	-0.150***	0.003***	0.001*	0.002***
	(0.001)	(0.012)	(0.001)	(0.001)	(0.000)
CEO duality			0.035***	0.011**	
			(0.006)	(0.005)	
Independent directors (%)			-0.222***	-0.116***	
			(0.030)	(0.028)	
Board size			-0.048***	-0.040***	
			(0.013)	(0.012)	
ZEP_{t-1}				0.480***	
				(0.017)	
SOP vote against in the top qrt.				-0.003	
				(0.004)	
Obs.	47,682	33,243	47,103	18,478	29,974
Adjusted R^2	0.152	0.177	0.159	0.329	0.054
Industry & year FEs	Yes	Yes	Yes	Yes	Yes

Continued.

Table IA3 continued.

Notes: Table IA3 presents the regression results of the determinants of zero-equity pay (ZEP) observations using an expanded sample covering all public firms with needed data from the EDGAR database over the period from 2006 to 2022 for columns 1, 2, 3, and 5. The sample period for column 4 is from 2011-2022. The dependent variable in columns 1 through 4 is *zero-equity pay* indicator*,* which equals one if a firm reports no equity grants in the summary compensation table or plan-based award table in a given year and zero otherwise. In column 5, the dependent variable, *entry* indicator, equals one for firm-year observations in which the firm, for the first time, opts not to use equity grants in its CEO pay structure and zero otherwise. Columns 1 and 2 include the full sample and the subsample of firms with less than 1% CEO ownership, respectively. Column 3 incorporates governance variables into the analysis. Column 4 examines the influence of shareholder activism, as measured by *SOP vote against in the top quartile* indicator. Column 5 examines firms' ZEP entry decisions. Year and industry fixed effects (based on two-digit SIC codes) are included in all regressions. Standard errors are clustered at the firm level and reported in parentheses. All independent variables, except for the S&P 1500 indicator, are calculated in the prior year. Definitions for all independent variables are provided in Appendix A. Statistical significance is indicated by *, **, and *** for the 10%, 5%, and 1% levels, respectively.

Internet Appendix A3. Compensation Structure of firms with zero-equity pay (ZEP) observations

We examine the compensation structures of firms with and without ZEP observations using regression analyses in Table IA4. We employ three sets of dependent variables to capture the relative use of cash-based compensation as a fraction of total compensation: (a) *total cash*, (b) *salary,* and (c) *other compensation*. The main independent variable, *zero-equity pay*, takes a value of one if the firm reports no equity grants in the summary compensation table (before 2006) or plan-based award table (from 2006 onwards) in a given year, zero otherwise. The regressions are conducted on the full sample and three subsamples: (1) firms with CEO equity ownership below one percent, (2) non-family firms, and (3) excluding firm-year ZEP observations covered by prior equity grants. Models 1, 3, 5, and 7 include the same independent variables and industry and year fixed effects as in Table 3, Columns 1-4, respectively. Models 2, 4, 6, and 8 additionally incorporate additional governance variables as in Table 5, Columns 1-4. Across all regression models, firm-years with ZEP allocate a significantly higher proportion of total compensation to cash, salary, and other components than those without ZEP. These findings depict an interesting contrast in the compensation design between ZEP and non-ZEP observations at the firm-year level.

Table IA4. Comparison of CEO Compensation Structures Across Firm-Years with and without Zero-Equity Pay

	Full sample		CEO ownership < 1%		Non-family firms (when family status data are available)		Excludes ZEP years covered by a prior equity grant	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variable: Total cash / Total compensation								
Zero-equity pay (0/1)	0.074***	0.080***	0.087***	0.098***	0.108***	0.120***	0.102***	0.103***
	(0.010)	(0.012)	(0.011)	(0.013)	(0.014)	(0.017)	(0.019)	(0.020)
Firm characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Gov. variables	No	Yes	No	Yes	No	Yes	No	Yes
Industry & year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	31,479	26,934	26,140	22,354	13,793	12,044	20,016	19,108
Adjusted R^2	0.100	0.099	0.098	0.098	0.107	0.109	0.095	0.096
Dependent variable: Salary / Total compensation								
Zero-equity pay (0/1)	0.216***	0.217***	0.208***	0.205***	0.204***	0.207***	0.220***	0.216***
	(0.009)	(0.010)	(0.010)	(0.011)	(0.011)	(0.013)	(0.015)	(0.015)
Firm characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Gov. variables	No	Yes	No	Yes	No	Yes	No	Yes
Industry & year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	31,479	26,934	26,140	22,354	13,793	12,044	20,016	19,108
Adjusted R^2	0.448	0.461	0.442	0.487	0.481	0.342	0.349	0.448
Dependent variable: Other compensation / Total compensation								
Zero-equity pay (0/1)	0.058***	0.066***	0.057***	0.066***	0.042***	0.047***	0.090***	0.091***
	(0.007)	(0.008)	(0.007)	(0.009)	(0.009)	(0.012)	(0.013)	(0.013)
Firm characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Gov. variables	No	Yes	No	Yes	No	Yes	No	Yes
Industry & year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	31,479	26,934	26,140	22,354	13,793	12,044	20,016	19,108
Adjusted R^2	0.124	0.145	0.130	0.155	0.144	0.162	0.178	0.188

Notes: Table IA4 reports regression results examining the relation between CEO non-equity compensation and zero-equity pay observations. *Zero-equity pay* is a binary variable that equals one if a firm reports no equity grants in the summary compensation table or plan-based award table in a given year and zero otherwise. The regressions also include firm characteristics, as in Table 3, and governance variables, as in Table 5. The dependent variable, *total cash*, is the sum of bonus and long-term cash pay reported in the Summary Compensation Table before 2006 and the sum of short-term and long-term cash grants reported in the Plan-Based Award Table from 2006 onward, scaled by total compensation. *Other compensation* is the amount of other compensation before 2006 and the sum of all retirement benefits and other compensation after 2006, reported in the Summary Compensation Table, scaled by total compensation. Columns 1-2 include the full sample, columns 3-4 include a subsample of firms with less than 1% CEO ownership, and columns 5-6 include a subsample of non-family firm-years (based on the subset where family firm status can be inferred; see Section 2.3 for details), respectively. The subsample in columns 7-8 excludes ZEP firm-year observations covered by prior equity grants. The sample period is from 1998-2022 for columns 1-6 and 2006-2022 for columns 7-8. Year and industry fixed effects (based on two-digit SIC codes) are included in all regressions. Standard errors are clustered at the firm level and reported in parentheses. All independent variables, except for the S&P 1500 indicator and the *zero-equity pay* indicator, are calculated in the prior year. The definitions of variables are provided in Appendix A. Statistical significance is indicated by *, **, and *** for the 10%, 5%, and 1% levels, respectively.