

Strategic News Releases in Equity Vesting Months ^{*}

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Abstract

We show that CEOs strategically time the release of corporate news to coincide with months in which their equity vests. These vesting months are determined by equity grants made several years prior and thus unlikely to be driven by the current information environment. We also find a reduction in news releases in the months before and after vesting. CEOs release 6% more discretionary news in vesting months than prior months. These effects only arise for releases of discretionary news and not non-discretionary news. News releases lead to a temporary run-up in stock prices and market liquidity, potentially resulting from increased investor attention or reduced information asymmetry. The CEO takes advantage of these effects by cashing out shortly after the news releases.

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1 Introduction

The timely release of information is central to the efficiency of both financial markets and the real economy. Information can affect real decisions either directly, or indirectly via affecting stock prices which agents use as signals (see the survey of Bond, Edmans, and Goldstein (2012)). For example, suppliers, employees, and capital providers may base their decision of whether to initiate, continue, or terminate their relationship with a firm on news releases, or stock prices that are affected by news.¹

News can also have distributional as well as efficiency effects. In particular, news reduces the information asymmetry between investors, thus protecting uninformed investors from trading losses. Indeed, Regulation FD aims to “level the playing field” between different investors by restricting selective disclosure. Moreover, these distributional consequences in the secondary market may feed back into efficiency consequences in the primary market. Uninformed investors, who expect future trading losses due to information asymmetry, may withdraw from the market entirely (Bhattacharya and Spiegel (1991)) or require a higher cost of capital (Diamond and Verrecchia (1991)), in turn hindering investment.

Timely information flows are thus important. Subsequent to Regulation FD in October 2000 and Sarbanes-Oxley in July 2002, corporate news releases have been particularly important in communicating new information to investors (Neuhierl, Scherbina, and Schlusche (2013)). However, news releases do not occur mechanically whenever corporate events take place – instead they are a discretionary decision of the CEO. This paper investigates whether the CEO strategically manages the timing of news releases for personal gain. Specifically, we hypothesize that a CEO who intends to sell equity in a given month will delay other-

¹ Moreover, real decisions may be affected not only by specific releases of information, but also the general informativeness of stock prices. For example, Faure-Grimaud and Gromb (2004) show that a blockholder will base her decision to undertake a costly intervention on whether the benefits of this intervention will be reflected in prices within her investment horizon.

wise past news releases until that month, and accelerate otherwise future news releases into that month. This is because disclosure can temporarily boost the stock price through two channels. First, disclosure can attract investor attention. Barber and Odean (2008) argue that investors need to browse through thousands of stocks when making a buy decision, and so are particularly likely to buy attention-grabbing stocks. They indeed find that retail investors are net buyers of such stocks, and Da, Engelberg, and Gao (2011) show that such buying leads to temporary price increases. Second, increased disclosure can reduce information asymmetry between investors, encouraging uninformed investors to buy the stock and raising the stock price. Indeed, Balakrishnan, Billings, Kelly, and Ljungqvist (2013) find that voluntary disclosures increase liquidity and thus firm value.

However, empirically demonstrating that CEOs disclose more news in months in which they sell equity would not imply a causal relationship from equity sales to disclosure, because the decision to sell equity is endogenous. For example, if a particular month is newsworthy, the CEO will undertake many news releases (even in the absence of strategic considerations) and take advantage of any resulting stock price increase by opportunistically selling equity. Thus, disclosure causes equity sales rather than expected equity sales causing disclosure.

Identification problems are typically addressed by using an exogenous shock to the endogenous variable – in our context, this would entail studying unexpected equity sales due to sudden liquidity needs. However, truly exogenous shocks are unpredictable by the CEO, and so he cannot shift disclosures from prior months to the month of the shock, as these disclosures have already been made. Thus, identification in our setting requires a measure of the CEO’s likelihood of selling equity that is both predictable and likely exogenous.

We identify a CEO’s likelihood of selling equity in a given month by whether he has stock or options scheduled to vest in that month. These “vesting months” depend on the

timing and vesting schedule of equity grants made several years prior², and thus are unlikely to be affected by the current information environment. It is unlikely that boards will be able to forecast, to the exact month, when news is most likely to be released several years in the future. We identify vesting months between 2006 and 2011 using a new dataset from Equilar, and hand-collect it from proxy statements and SEC Form 4 filings from 1994 to 2005.

We find that CEOs are likely to sell equity shortly after it vests, consistent with the optimal exercise behavior of an undiversified and risk-averse agent (e.g., Kahl, Liu, and Longstaff (2003) and Hall and Murphy (2002)). They are 23% (14%) more likely to sell shares following stock (option) vesting. Moreover, 15% (9%) of CEOs sell all securities resulting from stock (option) vesting in the vesting month. Thus, scheduled vesting of equity indeed leads to equity sales and thus short-term stock price concerns.

We next show that firms release significantly more news in vesting months than in non-vesting months, controlling for other determinants of news releases, such as months in which there is an earnings announcement, annual general meeting (“AGM”) or board meeting, analyst coverage, and other components of CEO pay. Firms also significantly reduce news disclosures in the month before and in the month after the vesting month. The number of discretionary news releases is 3% higher in vesting months than non-vesting months, and 6% higher than in prior months. The value of vesting equity is also significantly associated with the number of news releases. In contrast, the amount of non-discretionary news releases is no different between vesting and non-vesting months.

We then study the effect of news releases on trading volume and stock returns to verify whether disclosure indeed improves the conditions for equity sales. The disclosure of one discretionary news item in a vesting month generates a significant 16-day abnormal return

² The average vesting horizon in our sample is three years, with a maximum of seven years.

of 28 basis points (“bps”). The 31-day return is smaller (14 bps), suggesting that the news release leads to a temporary attention boost. Applied to the average annual value of securities resulting from CEO equity vesting of \$5.18 million³, a 28 bp return translates into an average CEO gain of \$14,504, in line with the gains to illegal insider trading.⁴ The 16-day gain from disclosing one news item related to earnings guidance is 119 bps, or \$61,642. These gains come at little cost to the CEO: changing the timing of news releases is legal, and involves less effort than (say) cutting investment projects. In addition, the CEO may be able to disclose more than one additional news item in a vesting month.

Total equity sales by a CEO cumulated over a vesting month average 37% of the mean daily trading volume in non-vesting months. Thus, the CEO may benefit not only from the higher price level that results from disclosure, but also any increased liquidity. On the first day after a discretionary news release, abnormal trading volume (as a proportion of shares outstanding) rises by 0.32 percentage points, compared to the mean of 0.22. This value decreases over time, consistent with an attention story.

The final step is to show that CEOs indeed take advantage of the observed short-term run-ups in stock price and trading volume. We find that the median interval between a discretionary disclosure in a vesting month and the first equity sale by a CEO is 5 to 6 days.

Our paper is mainly related to two literatures: corporate disclosures and equity vesting. Starting with the former, several papers examine the relation between disclosure and equity incentives (Penman (1982), Noe (1999), Nagar, Nanda, and Wysocki (2003), Cheng and

³ A CEO’s equity vesting in a particular year may vest over more than one month in that year. Applying the 16-day CAR of one news disclosure to the annual amount of vesting equity gives the CEO’s gain if he releases one additional disclosure in every month in which equity vests, and sells the vesting equity at the end of the 16-day period. Alternatively, instead of using the CEO’s annual average value of vesting equity, we could use the CEO’s average annual value of equity sales, which is \$5.44 million. This would imply slightly higher implied gains for the CEO.

⁴ Meulbroek (1992) provides an estimate of the median gain to illegal insider trading of \$17,628. As an example of a subsequent high-profile case, Martha Stewart avoided losses of \$45,673 when she sold shares of ImClone Systems in 2001, leading to a insider trading trial and indictment.

Lo (2006), and Brockman, Khurana, and Martin (2008)). These studies investigate current measures of incentives which are likely to be endogenous to the information environment, and so cannot identify causality. Other papers study disclosure incentives that stem from channels other than the CEO's contract. In Balakrishnan, Billings, Kelly, and Ljungqvist (2013), exogenous broker closures or mergers reduce public information and thus increase managers' incentives to provide earnings guidance in response. Ahern and Sosyura (2013) find that bidders in stock mergers with fixed exchange ratios originate significantly more positive news stories, which improves their stock price and thus merger terms. While the decision to undertake a stock-financed merger may be driven by the expectation of imminent positive news releases⁵, we study disclosure incentives that result from equity grants made several years prior. Another difference is that we study the incentives of the CEO in particular, rather than the firm in general: the news releases in our setting benefit the CEO specifically. While Bebchuk and Fried (2004) argue that CEOs negotiate higher grant-date pay, we show that CEOs can also increase the value of their pay upon vesting. However, while the potential gains are meaningful for the CEO (particularly since they involve little cost), they are small compared to firm value. Thus, we do not claim to identify a major agency problem between the CEO and shareholders. The main effect of the delay of news releases may be on stakeholders who made decisions prior to the vesting month with less information, or on the distribution of wealth between shareholders who traded in prior months.

Other papers study disclosures around option award (rather than vesting) dates. Aboody and Kasznik (2000) hypothesize that managers who receive scheduled option grants just before earnings announcements are more likely to have private information than those who receive grants afterwards. Studying 70 earnings forecasts, they find that the former group is

⁵ Ahern and Sosyura (2013) thus undertake a battery of tests to address alternative explanations for their results.

more likely to issue pessimistic earnings forecasts (which may lower the grant strike price) than the latter group. Daines, McQueen, and Schonlau (2014) find that before (after) scheduled option grants, the management issues negative (positive) earnings guidance, and 8-K filings of material corporate events exhibit negative (positive) announcement returns. We study the CEO's incentives to strategically time news in general, using a sample of 166,000 news releases that predominantly contains disclosures other than earnings guidance and 8-K filings, and show how the effect differs across discretionary and non-discretionary news. Many of these news releases are non-directional and thus affect the stock price through a different mechanism than in the case of earnings forecasts or 8-K filings – attracting attention or reducing information asymmetry – and thus also affect trading volumes. While options have been markedly replaced by stock in recent years (Frydman and Jenter (2010)), we show that the CEO's existing stock as well as option holdings both affect his disclosure incentives.⁶

The second related literature studies the relationship between vesting equity and corporate decisions. Edmans, Fang, and Lewellen (2013) show that newly-vesting equity is associated with declines in investment in the same year and a greater likelihood of meeting or narrowly beating earnings forecasts. Ladika and Sautner (2013) show that, in response to the adoption of FAS 123R, some firms chose to accelerate option vesting, and such accelerated vesting was associated with a reduction in capital expenditure. While those papers show that newly-vesting equity affects real decisions, we show that it can affect the information environment, thus linking a corporate finance variable (the CEO's contract) to financial markets. Moreover, since news releases are much easier to manage than real decisions, disclosure is arguably the most plausible arena in which short-term concerns will manifest.

⁶ Yermack (1997) shows that CEOs can also increase the value of their option grants by influencing their award dates around pre-scheduled earnings announcements. Options are more likely to be awarded before (after) positive (negative) earnings surprises. Smukler (2009) documents anecdotal examples of companies releasing negative information shortly after what he assumes to be the vesting dates of options. We have data on actual vesting dates and conduct a systematic study.

In addition, both investment papers only study the Equilar sample which starts in 2006, while we hand-collect data from 1994. Gopalan, Milbourn, Song, and Thakor (2013) study a different measure of short-term incentives – the duration (average vesting horizon) of the CEO’s equity holdings. They analyze the determinants of the CEO’s horizon, and so use a comprehensive measure of incentives that incorporates all equity tranches. In contrast, we study the consequences of CEO short-term concerns. We thus wish to measure the CEO’s incentives to increase the stock price in a given month, which are driven by whether he has equity vesting in that month. In addition, while duration is affected by current equity grants and likely endogenous, equity vesting depends on grants made several years prior.

In addition to the literature on short-term incentives in particular, our paper also contributes to the literature on CEO compensation in general. While this literature is substantial, it has found that it is very difficult to document causal effects. The survey of Frydman and Jenter (2010) notes that “compensation arrangements are the endogenous outcome of a complex process. This makes it extremely difficult to interpret any observed correlation between executive pay and firm outcomes as evidence of a causal relationship.” We use a measure of CEO incentives that is unlikely to be driven by the current contracting environment, allowing us to show that CEO contracts affect behavior.

This paper is organized as follows. Section 2 describes the data and Section 3 shows that CEOs frequently sell equity in vesting months. Section 4 presents our core results, linking the timing of discretionary news releases with equity vesting schedules. Section 5 shows that news releases lead to short-term increases in stock prices and trading volume, and that the CEO takes advantage of these increases by selling equity shortly after such releases. Section 6 discusses robustness tests and Section 7 concludes.

2 Data and Variable Construction

This section describes the variables used in our analysis. Our goal is to study how disclosure is affected by the CEO's concerns for the stock price in a given month. Theoretically, these concerns will arise if he has equity vesting in that month, because he should sell his vesting equity for diversification reasons (e.g., Kahl, Liu, and Longstaff (2003) and Hall and Murphy (2002)). We thus seek to identify these vesting months. Information on vesting schedules is available in SEC Form 4, which must be filed after the award of either stock or options. For each grant, the Form 4 filing provides the number of shares granted and the grant date in a standardized table, and vesting information in a footnote (if the grant does not vest immediately). For example, Form 4 indicates that John H. Eyster, Jr. of Toys "R" Us was awarded 20,000 restricted shares on April 1, 2004. The footnote reads:

"These shares vest 50% on the second anniversary of the award date and 100% on the third anniversary of the award date."

We use these footnotes to calculate the number of shares scheduled to vest on each date. Here, 10,000 shares vest on April 1, 2006, and the remaining 10,000 vest on April 1, 2007.

For option grants, a second source of vesting information is proxy statements, also filed with the SEC. Proxy filings provide information on all options granted during the year in a format comparable to Form 4. The number of securities, exercise price, and maturity are in a standardized table, and the vesting schedule is in a footnote. For example, the 2001 proxy filing of IBM states that Louis Gerstner received a grant of 650,000 options with an exercise price of \$109.62. The footnote reads:

"Mr. Gerstner's grant becomes exercisable in two equal installments, on March 1, 2001, and on March 1, 2002."

Here, 325,000 options vest on March 1, 2001, and the remaining 325,000 vest on March 1, 2002.

In a randomized sample of options, we find that the quality of information is higher in proxy statements than in Form 4 filings, which are not filed regularly and sometimes missing altogether. Unfortunately, proxy statements do not provide grant-level vesting information on restricted stock, but only the number of shares vesting in the current fiscal year. Therefore, we hand-collect option vesting information from proxy statements and stock vesting information from Form 4 filings, from 1994 (which is when SEC filings become available electronically) to 2005. To make the hand-collection manageable, we restrict our pre-2006 sample to firms that were part of the S&P 500 Index in any year within that period.

For grants starting in 2006, we use the Equilar dataset. Using proxy statements and Form 4 filings, Equilar provides vesting information for all stock and option grants to executives of Russell 3000 firms for the period 2006-2011, in a standardized format. For each grant, Equilar records the date and size of the grant, the length of the vesting period, and whether the grant exhibits cliff vesting (where the entire grant vests at the end of the vesting period) or graded vesting. Graded vesting means that part of the grant vests prior to the end of the vesting period, but it is unclear whether it corresponds to straight-line, back-loaded, or front-loaded vesting. We assume that graded vesting refers to straight-line vesting on an annual schedule, as most grants with graded vesting prior to 2006 vest on this basis.

We use the ex-ante vesting schedule information to create the variable *VestingMonth*, a dummy variable that equals one if the CEO has any equity vesting in a given month. We also create *VestingSensitivity*, the dollar sensitivity of the vesting securities to a 100% change in the stock price, which takes into account the amount of vesting equity. To do so, we first calculate the delta of the vesting securities. We obtain the strike price and maturity date of a given option grant from either the proxy statement or Equilar. We use this information, together with the average monthly stock return volatility over the past 12 months, annual dividend yield from CRSP, and the one-month Treasury bill rate as the risk-

free rate, to calculate the Black-Scholes delta. We sum across the deltas of all vesting option grants and add the number of vesting shares (since the delta of a share is 1) to calculate the aggregate delta of all vesting securities. This delta measures the dollar sensitivity of the vesting securities to a \$1 increase in the stock price. We multiply it by the stock price at prior month-end to form *VestingSensitivity*, the dollar sensitivity to a 100% change in the stock price. This sensitivity is comparable across firms with different stock prices and is analogous to the Hall and Liebman (1998) incentive measure, but focuses on vesting equity rather than the entire equity portfolio. While the delta represents the effective number of vesting shares, the sensitivity represents their effective value.

Edmans, Fang, and Lewellen (2013) use *VestingSensitivity* as their key independent variable, because they study the link between short-term incentives and investment. Since reductions in investment lower the future value of the firm and thus the CEO's unvested equity holdings, the CEO will trade off the short-term gain from disinvestment with the potential long-term loss. In contrast, it is less clear that strategically timing news has a substantial effect on long-run firm value; instead, its main effects are likely to be on other stakeholders or on the distribution of wealth between selling and buying shareholders. In addition, strategic timing of news arguably involves less effort than changing investment plans. Thus, it may be that vesting equity of any amount induces the CEO to increase disclosures in a given month. We thus use both *VestingMonth* and *VestingSensitivity* as independent variables in different specifications. Our discussion will primarily concern the *VestingMonth* results since they are easier to interpret – for example, we can compare the amount of news disclosed in vesting versus non-vesting months.

Our method of identifying equity vesting also differs from Edmans, Fang, and Lewellen (2013), who study the actual equity that vests in a given year. By looking at actual vesting ex-post, they do not require the assumption that graded vesting refers to straight-line vesting.

However, their measure is only available on an annual basis, consistent with their analysis of investment, which is also available on an annual basis. We study the number of news releases in a given month, which requires us to estimate the number of shares and options that vest in a given month. Thus, we follow Gopalan, Milbourn, Song, and Thakor (2013) by studying predicted vesting ex-ante.

Our main analysis links equity vesting to news releases. We obtain data on news releases from the Capital IQ database, which starts in 2002. We classify news releases into two categories. The first is discretionary news, the timing of which is likely to be under the CEO’s control, such as announcements of special dividends, restatements of operating results, and IPOs. Non-discretionary news are likely outside the CEO’s control, such as earnings announcements or AGMs. Appendix B provides the full classification, as well as the frequency of the different news items.

Since the number of news releases is discrete, we run a Poisson regression model. Specifically, we relate *NewsEvents*, the number of news events, to either *VestingSensitivity* or *VestingMonth*. We control for several other determinants of news releases, described in more detail in Appendix A. *AGM* and *Board* are dummy variables for whether there is an AGM or board meeting that month, which Dimitrov and Jain (2011) show are associated with earnings guidance. *EAYearly* and *EAQuarterly* are dummy variables for whether that month featured a yearly or quarterly earnings announcement. *EarningsSurprise* is that quarter’s earnings surprise taken from the Institutional Broker Estimates Services (“I/B/E/S”) database. *Analyst* is the log of one plus the number of analysts following the stock (from I/B/E/S). Balakrishnan, Billings, Kelly, and Ljungqvist (2013) show that firms release more news to compensate for a loss in analyst coverage. After filtering for the availability of these controls, we have 166,041 news releases. We also control for other components of CEO pay. *Salary* and *Bonus* are the log of the CEO’s annual salary and bonus from ExecuComp.

A higher salary and bonus may increase the CEO's incentive to preserve his job, potentially by releasing news to augment the stock price. *VestedSensitivity* and *UnvestedSensitivity*, the sensitivity of the CEO's already-vested and unvested equity, are calculated analogously to *VestingSensitivity*. We do not have a clear prediction for the signs of these coefficients. The CEO may be voluntarily holding already-vested equity for control, investment, or signaling purposes, so may not intend to sell it. Since the strategic reallocation of news releases may not have a significant long-term effect on firm value, the association with unvested equity is unclear.

Other tests link equity vesting to equity sales, to show that vesting equity indeed induces short-term stock price concerns. (For brevity, we will use the term "equity sales" to refer to sales of shares resulting from either stock or option vesting.) We obtain data from the Thomson Financial Insider Trading database, which is collected from SEC Form 4. *EquitySalesDummy* is an indicator that equals one if the CEO sells any equity in a given month, and *EquitySalesAll* is an indicator that equals one if the CEO sells all the equity that vested in the most recent vesting month. We will relate *EquitySales* to *VestingMonth* or *VestingSensitivity*, controlling for *VestedSensitivity* and *UnvestedSensitivity*: a CEO that holds significant unvested equity may have greater diversification needs and thus sell equity more readily upon vesting. We also control for *AGM*, *Board*, *EAYearly*, *EAQuarterly*, and *EarningsSurprise*.

Our remaining tests investigate the stock price and trading volume reaction to news releases, which we study using a standard event-study methodology, and we also study the interval between news releases and equity sales.

Table 1 presents the summary statistics for the main variables used in our study. In Panel A, we show that equity vesting periods average 3.4 years for stock and 3.6 years for options, with a maximum of 7 and 6.3 years, respectively. Thus, vesting equity is determined

by equity grants awarded to the CEO several years prior, and can plausibly be considered exogenous to the current information environment. On months with corporate news events in Capital IQ, a typical firm has an average of 4 news releases, of which 3 are discretionary. If we include the months with no news, the averages are 1.8 and 1.5. In Panel B of Table 1, we provide detailed statistics on equity vesting and equity sales by CEOs. In our sample, CEOs sell on average \$5.4 million worth of shares per year, there are 3 vesting months on average per year, and CEOs trade in 4 out of 12 months on average.

Appendix C reports the correlations between some of the main variables used in this study. Appendix D shows the distribution of events across the months in a calendar year. The first quarter contains nearly 40% of vesting months, 50% of grant months, and more than 70% of yearly earnings announcements. It will therefore be important to control for month fixed effects in our analyses.

3 Equity Vesting and CEO Sales

This section studies whether CEOs indeed sell equity soon after it vests. In Table 2, we compute the average distance between the month in which a CEO's equity vests and the month in which we first observe a subsequent equity sale. We report the results separately for cliff and graded vesting, to study if there are systematic differences between these subsamples.

In Panel A, we show that in more than 50% of the cases, the CEO sells stock in the vesting month. The frequency of first equity sales in any subsequent month is less than 10%. The pattern is similar for the exercise of options, but with lower magnitudes for the vesting month. In Panel B, we report the time it takes for a CEO to sell all the equity that vests in a vesting month. It shows that in 17% of the cases, the CEO sells all the equity in the same month in which it vests.

The CEO pays a lower, long-term, capital gains tax rate if he waits 12 months after stock vesting or option exercise before selling his shares (e.g. Cicero (2009) and Fos and Jiang (2014)). However, in Table 2 the amount of equity sales observed in month 12 is only 0-2% higher than in month 11, and much smaller than the frequency of sales in the vesting month itself. We conclude that most vesting-related trades happen in the vesting month and thus use this month for identification.

In Table 3, we provide a multivariate analysis of the determinants of CEO sales. We report results from the following regression:

$$\begin{aligned}
 EquitySales_{s,t} = & \alpha + \beta * VestingMonth_{s,t} + \rho * \sum_{\tau \in \{-1,+1\}} OtherMonth_{s,t+\tau} + \quad (1) \\
 & + \gamma * Controls + Fixed Effects + \epsilon_{s,t},
 \end{aligned}$$

where s indexes a firm and t indexes a month. We use year, month, and firm fixed effects to control for unobservable firm-level or time-specific determinants of equity sales. The dependent variable *EquitySales* is *EquitySalesDummy* in Panel A and *EquitySalesAll* in Panel B. Our key independent variable of interest is *VestingMonth*. We also include additional indicators for one month before and one month after the vesting month (*OtherMonth_{s,t+τ}* for $\tau \in \{-1, +1\}$). The remaining controls are as described in Section 2.

The results in Table 3 are consistent with those in Table 2. Panel A reports that CEOs are likely to sell equity shortly after it vests. They are 23% more likely to sell shares in a month in which stock vests than in a month in which no stock vests (Panel A, column (1)); this figure is 14% for options (Panel A, column (4)). Moreover, CEOs are 15% more likely to sell the full amount of vesting stock in the vesting month than in any subsequent month (Panel B, column (1)); this figure is 9% for options (Panel B, column (4)).

The control variables load with the expected sign. CEOs are more likely to sell equity in months where earnings are announced or there is an AGM, there are earnings surprises, and the CEO holds more unvested equity (*UnvestedSensitivity*).

Overall, the results in Tables 2 and 3 suggest that managers are likely to sell equity shortly after vesting, consistent with the optimal behavior of a risk-averse agent. Therefore, vesting equity induces the CEO to be concerned with short-term stock prices. Since the results are similar between stock and options, and cliff and graded vesting, we will consider aggregate vesting of all equity in the bulk of the paper.

4 News Releases and Equity Vesting

Table 4 reports the core results of this paper, that vesting equity is significantly related to news releases. In Panel A, our independent variable of interest (*VestingMeasure*) is the *VestingMonth* dummy. We also add indicators for the months surrounding the vesting month (*OtherMonth*). Panel B studies the log of $1+VestingSensitivity$, which captures the CEO's dollar incentive to increase the current stock price. We take the log because *VestingSensitivity* is highly positively skewed. We run the following log-linear model for the count of news events, under the assumption of a Poisson error structure:

$$\begin{aligned}
 NewsEvents_{s,t} &= \alpha + \beta * VestingMeasure_{s,t} + \rho * \sum_{\tau \in \{-1,+1\}} OtherMonth_{s,t+\tau} \quad (2) \\
 &+ \gamma * Controls + Fixed Effects + \epsilon_{s,t}
 \end{aligned}$$

This model accounts for the discreteness of our data by using an explicit stochastic specification for the news variable. In particular, we assume that our dependent variable (*NewsEvents*) follows a Poisson distribution. This enables us to obtain unbiased conditional estimates of the slope parameters (Gourieroux, Monfort, and Trognon (1984)).

In column (1) of Panel A, we include only indicators for the vesting month, the month before, and the month after vesting. In columns (2) to (4), we control for newsworthy months (*AGM*, *Board*, *EAYearly*, and *EAQuarterly*), as well as *EarningsSurprise* and *Analyst*. Column (5) adds the CEO compensation controls of *Salary*, *Bonus*, *VestedSensitivity*, and *UnvestedSensitivity*; this significantly decreases our sample size for 2006-2011 since ExecuComp (from where we obtain *Salary* and *Bonus*) has smaller cross-sectional coverage than Equilar. All specifications include year, month, and firm fixed effects.⁷ In column (1), Panel A, we find that firms release 4% more discretionary news in vesting months.⁸ This figure becomes 2% when controlling for other newsworthy months and analyst coverage (column (2)), and 3% when adding all controls (column (5)). The disclosure study of Balakrishnan, Billings, Kelly, and Ljungqvist (2013) focuses exclusively on corporate guidance, arguing that it is one of the most important discretionary channels through which executives affect investor perceptions. Column (4) shows that firms provide 61% more earnings guidance in vesting months (including the non-compensation controls). While highly economically significant, this result is only significant at the 10% level since guidance items are relatively rare. Column (3) shows that the amount of non-discretionary news is not different between vesting and non-vesting months, consistent with the CEO having less latitude to control non-discretionary news.

There is also a significant reduction in the amount of news both one month before and one month after the vesting month, suggesting that the CEO may be strategically delaying news releases until the vesting month and accelerating them into the vesting month. Firms release 6% more discretionary news in the vesting month compared to the prior month (column (1)).

⁷ The results are unchanged when using CEO instead of firm fixed effects.

⁸ To obtain this figure, we divide the coefficient of 0.0615 by the average number of discretionary news releases of 1.48 per month, which is reported in Table 1.

This figure decreases to 4% when adding the non-compensation controls (column (2)), and remains at 6% with all controls (column (5)).

Panel B replaces the *VestingMonth* and *OtherMonth* dummies with the logarithm of $1+VestingSensitivity$. The sensitivity of vesting equity is significantly positively related to discretionary news releases, but unrelated to non-discretionary news releases.

The above analysis quantifies the increase in news releases in vesting months over non-vesting months. A broader question is the extent to which news releases are higher in months in which the CEO sells equity in general. Equity sales can stem from channels other than vesting equity – for example, a CEO may voluntarily hold already-vested equity as a long-term investment, but later decides to rebalance his portfolio. Since actual equity sales are endogenous, we use vesting months as an instrument. The two properties of vesting months discussed earlier – their high correlation with same months and their determination by equity grants awarded several years prior – are analogous to the relevance criterion and the exclusion restriction for a valid instrument.

In Panel A of Table 5, we report results of a two-stage least squares (“2SLS”) test where we instrument for *EquitySales*, a dummy variable for months in which the CEO sells equity, using *VestingMonth*. The control variables are as in Table 4, except that we remove the indicators for the months surrounding the vesting month.

The first column of Table 5 (“First Stage”) reproduces the basic results of Table 3, column (1). The instrument *VestingMonth* is significant, with a coefficient of 0.17 indicating a 17% increase in the likelihood of selling equity in the vesting month. Moreover, the F-statistic of 751 alleviates concerns that the instrument is weak. The sign and significance for the control variables is similar to Table 3.

The following three columns (“Second Stage”) show that firms release significantly more news in months in which the CEO is predicted to sell equity. In column (1), the coefficient

on *TradingMonth* implies that firms release 24% more discretionary news and 48% more earnings guidance in trading months; both coefficients are statistically significant.⁹ As in Table 4, the coefficient is insignificant for non-discretionary news. The sign and significance for all other variables is similar to the results reported in Table 4.

5 Returns and Volume in the Vesting Month

The results in Tables 4 and 5 suggest that CEOs release more corporate news in vesting months. Our hypothesis is that they do so to increase the stock price and trading volume, by reducing information asymmetry and attracting investor attention. In Table 6, we study whether news releases indeed have these effects. In Panel A, we calculate the average 2-day ([0,1]), 16-day ([0,15]), and 31-day ([0,30]) cumulative abnormal return (CAR) and daily abnormal trading volume around the release of discretionary news. We use these different windows to test whether any price and volume increase is temporary, as predicted by an attention story. The CAR is calculated over the CRSP value-weighted index, using a beta estimated over [-300,-46]. The daily abnormal trading volume is the daily trading volume minus the average trading volume over [-70,-31], divided by shares outstanding.¹⁰

Panel A shows that a discretionary news release in a vesting month is associated with a 16-day CAR of 28 bps ($t = 4.54$). The average annual value of CEO equity vesting is \$5.18 million, as reported in Table 1, Panel B.

Therefore, a 28 bp CAR implies an average gain of \$14,504. While this gain appears modest, it is in line with gains reported in cases of illegal insider trading. For example,

⁹ There are 0.155 more (log) discretionary news items in (predicted) trading months. The overall mean of (log) discretionary news items is 0.64. Therefore, the trading month exhibits a 24% ($=0.155/0.64$) increase. For guidance, the calculation is $0.0373/0.078 = 48\%$.

¹⁰ We calculate the trading volume rather than the Amihud (2002) liquidity measure as the latter is typically a monthly average of daily observations (to ensure precise estimation), and so is not available at a daily frequency.

Meulbroek (1992) reports that the median insider trading defendant transacted in one security and reaped \$17,628 in profit. Moreover, the gain is even higher if the CEO discloses several news items, and comes at little cost to the CEO: changing the timing of news releases is legal, and involves less effort than other attempts to inflate the stock price (such as changing investment projects). For one news item related to earnings guidance in the vesting month, the 16-day CAR is 119 bps, implying a gain to the CEO of \$61,642. These magnitudes are economically meaningful but also plausible. In particular, while significant for the CEO (especially because they come at little cost), they are not substantial compared to firm value, and so it is unlikely that boards would intervene to prevent such strategic timing. Panel A also shows that the 2-day CARs to discretionary and non-discretionary news are similar to the 16-day CARs, but the 2-day CARs to corporate guidance are somewhat smaller (76 bps) than the 16-day CAR. This difference indicates a more prolonged reaction time to corporate guidance than to other news items.

Panel A also reports the price reactions to disclosures in non-vesting months. The 2-day CAR for discretionary news in non-vesting months is smaller than for vesting months, at 17 bps compared to 25 bps, while the 16- and 31-day CARs are higher. These results suggest that the CEO may be releasing particularly attention-grabbing news in vesting months, which have a short-lived price impact. One may wonder why the market does not take into account the CEO's incentives to release news in equity vesting months, and thus exhibit the same 2-day CAR as in non-vesting months. One potential explanation is that data on equity vesting is not salient and must be hand-collected from footnotes and Form 4 filings. von Lilienfeld-Toal and Ruenzi (2014) find long-run abnormal returns to portfolios formed on standard measures of CEO incentives (wealth-performance sensitivity). That even standard elements of the CEO's contract are not fully incorporated by the market is consistent with the market not taking into account the CEO's equity vesting schedule. In addition, while

a rational market may discount the information content of positive news releases issued by a manager with vesting equity, the positive abnormal returns to disclosures may stem from attracting attention (rather than their information content) which is less likely to be discounted.

Panels B and C are multivariate regressions which include controls for other newsworthy events that fall on the announcement day. We control for days of earnings announcements (*EAYearly* and *EAQuarterly*), *AGM*, and *Board*. After controlling for these events, Panel B shows that the 2-day and 16-day CARs to discretionary news releases are significant, but the 31-day CAR is not. The 2-day reaction to discretionary news is 8.6 bps higher for vesting months than non-vesting months, significant at the 5% level. In contrast, the difference in reactions for non-discretionary news is insignificant. Panel C documents that the 2-day CAR to corporate guidance is 33 bps higher in vesting months, significant at the 1% level. This result suggests that the firm may be releasing particularly positive guidance during vesting months.

In Figure 1, we plot the abnormal return around the news event dates. Panels A and B show that stock price patterns are very similar for both discretionary and non-discretionary news, and also between vesting and non-vesting months. In Panel C, the same-day reaction to earnings guidance is over 50 bps for vesting months, compared to under 10 bps for non-vesting months.

The stock return figures presented above do not account for any increase in trading volume resulting from news releases, which can reduce the price impact of CEO equity sales. Panel A of Table 6 reports that, in a vesting month, the release of discretionary news generates average daily abnormal trading volume of 0.32% ($t = 31.53$) of shares outstanding over 2

days, and 0.03% ($t = 7.47$) over 16 days.¹¹ This compares to an average daily trading volume of 0.22%, and the CEO's average equity sale (on a sale day) of 0.165% of shares outstanding. Thus, the abnormal trading volume is nearly double the volume of the average CEO equity sale, and therefore can provide adequate camouflage. Note that this difference is not because CEO sale volumes are small: the average CEO equity sale is 6.2% of the average daily volume. After 31 days, the effect vanishes. Abnormal trading volume generated by discretionary news in non-vesting months is smaller and exhibits a similar downward trend. Panels B and C add controls for other events and find a similar pattern. Panel B shows that the abnormal trading volume associated with discretionary news is significantly higher for vesting than non-vesting months using a 2- or 16-day window (0.0446% and 0.0122% with p-values of 0.00 and 0.03, respectively), suggesting that news in vesting months particularly attract attention. The difference is insignificant for the 31-day window (0.0089% with a p-value of 0.29). For non-discretionary news, the difference in abnormal trading volume between vesting and non-vesting months is insignificant (p-values ranging from 0.55 to 0.86). Panel C finds the abnormal trading volume to corporate guidance is not significantly different between vesting and non-vesting months, in contrast to our abnormal return results. This suggests that the different response of returns to the release of guidance in vesting and non-vesting months could be due to the positivity of the guidance rather than it generating attention.

In Figure 2, we plot abnormal trading volume from 30 days before the news event date until 30 days after. For discretionary news (Panel A), the abnormal turnover is 40 bps on the event date, and for non-discretionary news (Panel B) it is 70 bps. The higher figure for non-discretionary news is likely because this category includes earnings announcements. For corporate guidance (Panel C), abnormal trading volume is 140 bps.

¹¹ The figures in Table 6 exclude the contribution of CEO trades to the abnormal trading volume. Including them has very little effect on the results.

Since the increases in the stock price and volume are temporary, we study whether CEOs indeed take advantage of these short-term effects by selling their equity shortly after news releases in vesting months. We compute the distance between the date of the release of corporate news and the date of the CEO's actual equity sales. Figure 3 illustrates the number of trading days between a news release date and the first subsequent CEO equity sale. Half of the first equity sales occur within 5 to 6 days after the release of discretionary news in vesting months, compared to more than 45 days for non-discretionary news. These results suggest that the CEO sells his equity particularly quickly after discretionary news releases, consistent with such releases in vesting months being undertaken precisely to improve the conditions for equity sales. Recall that announcement returns to guidance take more time to rise than other news items, with the 16-day return being significantly higher than the 2-day return. Consistent with this prolonged reaction time, trades after guidance happen more slowly than after other discretionary news. About 20% of transactions happen in the first 12 days after guidance releases.

Overall, our results indicate that the timing of corporate news may be influenced by CEOs seeking to attract investor attention or reduce information asymmetry among their investors. Such behavior can accomplish two related goals: it allows CEOs to sell their newly-vested equity at higher prices and at reduced price impact.

6 Robustness Tests

This section examines the robustness of our main findings in Table 4 to alternative samples and measurement choices. In Table 7, we report estimates obtained from using the same specification as column (2) of Table 4 (the effect of vesting equity on the number of discretionary news releases, including non-compensation controls), unless otherwise noted. To

save space, we only report the coefficient on *VestingMeasure*, the independent variable of interest.

In Panel A, our main independent variable is an indicator function that equals one if a particular month is a vesting month (*VestingMonth*), and zero otherwise. In column (1), we restrict our sample to firms that were part of the S&P 500 at some point during the period between 1994 and 2011. This restriction excludes small firms in the Russell 3000 covered by Equilar. The positive and significant coefficient on *VestingMonth* suggests that our results in Table 4 are not driven by small firms that could be illiquid or release little news.

In column (2), we restrict our sample to firms covered in the Equilar database, which covers Russell 3000 firms from 2006 to 2011 and has been used by the prior literature, such as Gopalan, Milbourn, Song, and Thakor (2013) and Edmans, Fang, and Lewellen (2013). This excludes our hand-collected data of S&P 500 firms for the period between 1994 and 2005. Our results remain significant, which suggests that they are not due to any particular feature or systematic bias of our hand-collected data.

Aboody and Kasznik (2000) and Daines, McQueen, and Schonlau (2014) show that CEOs have an incentive to influence the timing of the release of news around the award dates of (scheduled) option grants. Specifically, they show that CEOs have an incentive to accelerate the release of negative news before the award dates, and delay the release of positive news until after the award date. As a result, the increase in the amount of news releases that we observe in the vesting month could be explained by the fact that the month is an award month and not a vesting month. In column (3), we control for *GrantMonth*. The positive and significant coefficient on the *VestingMonth* suggests that our results in Table 4 are not driven by award months.¹²

¹² Appendix D shows the distribution of vesting and award months across the calendar year.

In column (4), we randomize the assignment of vesting months, in the spirit of Daines, McQueen, and Schonlau (2014). We randomly assign months to our *VestingMonth* indicator. This pseudo-vesting month does not have any explanatory power, suggesting that our result is not driven by other spurious events.

Column (5) excludes from our sample all equity grants that include performance-vesting provisions (studied by Bettis, Bizjak, Coles, and Kalpathy (2010)). Such grants will not vest on their scheduled vesting date if certain performance thresholds have not been met. Our results are unchanged.

The award of restricted stock to CEOs has become more common than options recently, in part due to the option backdating scandal. In columns (6) and (7) we limit our sample to stock and options, respectively. Our result holds for both components of CEO equity. Thus, our results are not driven by a component of compensation (options) that is becoming less common nowadays.

In Panel B of Table 7, our main independent variable is the dollar sensitivity of newly-vesting equity to changes in the stock price ($\text{Log}(1 + \text{VestingSensitivity})$), which captures CEO incentives to influence the stock price. The three specifications presented in Panel B are the same as the first three in Panel A (except that in column (3) we control for *GrantSensitivity* instead of *GrantMonth*). Overall, our results are also robust to alternative samples and measurement choices when we study the vesting sensitivity instead of the vesting month dummy.

7 Conclusion

This paper shows that managers strategically time the disclosure of discretionary corporate news to coincide with the scheduled vesting of their equity grants. Discretionary disclosures

are significantly higher in months in which equity is scheduled to vest, and significantly lower in the months before and after vesting. They are associated with transient increases in the stock price and trading volume, consistent with an attention story. CEOs indeed exploit these temporary effects: 50% of CEOs engage in their first equity sale within 5 to 6 days of the last discretionary news release.

Our results have two main implications. First, we show that a CEO's contract affects firm behavior; moreover it affects not just corporate decisions (as typically studied by the myopia literature) but also the firm's information environment. This result links corporate finance to financial markets. Second, we provide evidence that CEOs strategically time the release of news, using a measure of the CEO incentives that is likely exogenous to the current information environment. Information does not just flow mechanically to financial markets when events occur, but instead the timing of news releases can be strategically chosen by the CEO. These news releases in turn affect stock prices, and thus may have distributional consequences on shareholders who trade, and efficiency consequences on stakeholders who base their decisions on corporate news or stock prices.

In ongoing work, we are studying the content of the news releases, e.g. whether CEOs are particularly likely to release positive news in vesting months. The current analyses show that earnings guidance leads to a significantly more positive announcement return in vesting months than in non-vesting months, providing suggestive evidence that the earnings guidance in vesting months is upward, but we will study the positivity of news releases systematically in a future draft.

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Table 1: Sample Statistics

This table reports the summary statistics for the main variables used in this study. The data on vesting schedules (disclosure requirement of FAS 123(R)) was hand-collected from proxy statements (options) and from Insider Trading filings (restricted stock) for S&P 500 firms in the period between 1994 and 2005. For the period between 2006 and 2011, vesting schedules are extracted from the Equilar database, which covers Russell 3000 firms. The data on insiders' transactions is extracted from Thomson Reuters Insider Trading filings (SEC Form 4), and the data on firm and stock characteristics comes from Compustat and CRSP, respectively. Data on corporate news events is extracted from the Capital IQ database, which covers the period between 2002 and 2011.

	Obs	Mean	Median	STD	Skewness	Kurtosis	1st Pctile	25th Pctile	75th Pctile	99th Pctile
<u>Stock Grants:</u>										
Vesting Period	10,877	3.42	3.00	1.22	1.44	13.59	1.00	3.00	4.00	7.00
Value Granted (millions)	10,877	1.06	0.70	0.95	0.00	0.00	0.01	0.26	1.74	2.73
% Cliff	10,877	0.37	0.00	0.48	0.54	1.29	0.00	0.00	1.00	1.00
<u>Option Grants:</u>										
Vesting Period	14,947	3.61	4.00	1.13	0.59	7.64	1.00	3.00	4.00	6.33
Value Granted (millions)	14,947	0.45	0.23	0.51	0.00	0.00	0.00	0.07	0.67	1.52
% Cliff	14,947	0.15	0.00	0.36	1.93	4.73	0.00	0.00	0.00	1.00
<u>CEO Incentives:</u>										
Vested Sensitivity (dollar units)	65,400	13,594	3,982	39,730	15,388	380.974	0	2	13,095	139,444
Vesting Sensitivity (dollar units)	35,100	16,000	3,328	48,000	9	173	0	750	12,000	230,000
Non-Vested Sensitivity (dollar units)	114,000	26,000	8,075	51,000	5	42	1	1,778	27,000	260,000
Bonus (thousands)	35,400	1,016	450	1,987	8.132	97.752	1	155	1,154	7,500
Salary (thousands)	153,000	757	714	352	3.193	28.075	228	528	928	2,000
<u>Corporate News Events (Excluding No-News Months):</u>										
All News	51,100	4.021	3	3.523	8.65	192.05	1	2	5	14
Discretionary News	48,100	3.528	3	3.396	10.15	235.01	1	2	4	13
Guidance	10,500	1.043	1	0.212	5.10	31.10	1	1	1	2
<u>Corporate News Events (Including No-News Months):</u>										
All News	115,000	1.792	0	3.087	7.05	163.89	0	0	3	11
Discretionary News	115,000	1.48	0	2.805	8.98	235.97	0	0	2	10
Guidance	115,000	0.095	0	0.307	3.21	13.34	0	0	0	1
<u>Stock Characteristics:</u>										
Return	100,287	0.011	0.006	0.164	7.61	485.97	-0.374	-0.064	0.075	0.488
Trading Volume	99,407	0.217	0.16	0.224	7.62	189.19	0.012	0.092	0.269	1.034
<u>Firm Characteristics:</u>										
Market Capitalization (millions)	114,000	3,700	720	15,000	13	213	19	250	2,200	54,000
Earnings Surprise	100,417	0.219	0	1.223	2.90	17.36	-3.536	0	0	7

Table 1: Continued

PANEL B: Equity Vesting and CEO Equity Sales										
	Obs	Mean	Median	STD	Skewness	Kurtosis	1st Pctile	25th Pctile	75th Pctile	99th Pctile
<u>Monthly Calculations (All Months):</u>										
<i>VestingMonth</i> Dummy	114623	0.16	0.00	0.37	1.83	4.33	0.00	0.00	0.00	1.00
<i>TradingMonth</i> Dummy	114623	0.09	0.00	0.28	2.92	9.53	0.00	0.00	0.00	1.00
Average Number of Trades	10028	5.44	1.00	18.21	9.59	143.48	1.00	1.00	3.00	84.00
Vesting Quantity (Stock and Options) [000's]	114623	14.73	0.00	174.35	136.70	23000.00	0.00	0.00	0.00	266.90
Vesting Quantity (Stock Only) [000's]	114623	3.52	0.00	37.66	94.41	14000.00	0.00	0.00	0.00	81.00
Vesting Quantity (Options Only) [000's]	114623	11.20	0.00	168.78	149.61	26000.00	0.00	0.00	0.00	225.98
Vesting Value (Stock and Options) [000's]	114385	291.44	0.00	2110.12	26.27	1381.99	0.00	0.00	0.00	6183.08
Average Quantity Traded [000's]	114623	3.98	0.00	55.57	95.89	14000.00	0.00	0.00	0.00	85.78
Average Value Traded [000's]	114385	114.79	0.00	1581.97	99.85	16000.00	0.00	0.00	0.00	2581.89
<u>Monthly Calculations (Non-Zero Months Only):</u>										
Average Number of Trades	10028	5.44	1.00	18.21	9.59	143.48	1.00	1.00	3.00	84.00
Vesting Quantity (Stock and Options) [000's]	18682	90.34	35.33	423.90	57.82	4001.19	0.51	12.50	93.75	750.00
Vesting Quantity (Stock Only) [000's]	10362	38.95	16.00	119.61	31.68	1498.19	0.33	6.25	39.33	333.33
Vesting Quantity (Options Only) [000's]	13312	96.47	41.25	486.89	53.13	3219.40	1.00	16.31	100.00	758.33
Vesting Value (Stock and Options) [000's]	18641	1788.34	473.75	4964.49	11.45	262.44	3.92	146.66	1474.83	21000.00
Average Quantity Traded [000's]	10028	45.54	13.13	182.77	30.11	1373.40	0.16	4.45	40.00	480.00
Average Value Traded [000's]	10025	1309.73	287.90	5195.41	31.47	1584.53	2.42	77.31	1036.58	15000.00
<u>Yearly Calculations (Non-Zero Vesting or Non-Zero Trading Only):</u>										
Number of Vesting Months	1287	3.11	2.00	3.47	3.53	19.41	1.00	1.00	3.00	19.00
Number of Trading Months	721	4.23	3.00	4.07	2.94	16.43	1.00	2.00	5.00	20.00
Vesting Quantity [000's]	1287	255.94	101.09	518.70	7.41	86.14	1.15	37.99	266.78	2426.83
Vesting Value [000's]	1286	5179.85	1890.67	14467.40	6.39	58.60	23.14	677.89	5435.41	49000.00
Average Quantity Traded [000's]	721	166.71	65.62	340.14	6.90	74.26	0.81	20.39	179.00	1623.78
Average Value Traded [000's]	721	5436.13	1808.97	9322.94	4.57	29.76	17.16	454.71	5333.94	63000.00

Table 2: Time from Vesting to First Sale and to Full Sale

This table reports the distance between the month of equity vesting and the month of the first observed transaction for the CEO (Panel A), as well as the time it takes the CEO to sell all the equity that vested in the most recent vesting month (Panel B). The data on equity vesting is in part extracted from Equilar (years 2006-2011, Russell 3000 firms) and in part hand-collected from 10-K forms (years 1994-2005, S&P500 firms). The data on CEO trading is extracted from Thomson Financial Insider Trading filings (SEC Form 4). In Panel A we present the results for stock and options. We split the sample between grants that vest entirely at one time (cliff vesting), and grants that vest gradually over a period of time (graded vesting). We show the frequency of observations and their respective percentages.

# Months	PANEL A: Months Until First CEO Sale						PANEL B: Months Until All Newly-Vested Is Sold						
	Stock			Options			All			All			
	Graded	Cliff	All	Graded	Cliff	All	Graded	Cliff	All	Graded	Cliff	All	
Freq.	Perc.	Freq.	Perc.	Freq.	Perc.	Freq.	Perc.	Freq.	Perc.	Freq.	Perc.	Freq.	Perc.
0	3217	52	570	54	3,138	34	231	29	1759	0	1759	17	
1	483	8	84	8	761	8	72	9	669	1	669	7	
2	249	4	62	6	486	5	69	9	435	2	435	4	
3	235	4	32	3	431	5	37	5	440	3	440	4	
4	178	3	24	2	321	3	29	4	303	4	303	3	
5	145	2	27	3	287	3	32	4	286	5	286	3	
6	162	3	14	1	321	3	24	3	350	6	350	3	
7	124	2	23	2	241	3	20	3	266	7	266	3	
8	115	2	15	1	216	2	20	3	217	8	217	2	
9	121	2	19	2	264	3	17	2	293	9	293	3	
10	133	2	25	2	295	3	16	2	331	10	331	3	
11	138	2	20	2	261	3	14	2	302	11	302	3	
12	222	4	26	2	368	4	18	2	745	12	745	7	
13	73	1	13	1	142	2	12	2	291	13	291	3	
14	41	1	2	0	104	1	10	1	185	14	185	2	
15	34	1	7	1	103	1	8	1	172	15	172	2	
16	32	1	5	0	82	1	4	1	124	16	124	1	
17	27	0	2	0	67	1	2	0	123	17	123	1	
18	25	0	3	0	82	1	3	0	152	18	152	2	
>18	408	7	74	7	1259	14	160	20	2712	>18	2712	27	

Table 3: Equity Vesting and CEO Sales

In this table, we report the estimates of a model designed to capture whether CEOs are more likely to sell equity during the month in which such equity is pre-scheduled to vest. We use the following regression specification: $EquitySales_{s,t} = \alpha + \beta * VestingMonth_{s,t} + \rho * \sum_{\tau \in \{-1,+1\}} OtherMonth_{s,t+\tau} + \gamma * Controls + \text{Fixed Effects} + \epsilon_{s,t}$. The dependent variable $EquitySales_{s,t}$ is $EquitySalesDummy_{s,t}$ in Panel A, and $EquitySalesAll_{s,t}$ in Panel B. The variable $VestingMonth_{s,t}$ is an indicator function that equals one if an equity grant vests in month t for firm s . The function $OtherMonth_{s,t+\tau}$ indicates the month that is τ months apart from the vesting month t . For $\tau \in \{-1,+1\}$ the function indicates the month immediately before the vesting month and the month immediately after. We include in our list of controls, variables that are intended to capture the information environment of the firm, other aspects of the CEO compensation structure, as well as indicators for whether the month of equity vesting coincides with other important periodic events not related to vesting. For instance, whether the vesting month is also the fiscal-year end of the firm. We also control for firm, year, and month fixed effects. A detailed description of each control variable is included in Appendix A. The correlation matrix of the main variables used in this study is presented in Appendix C. Our sample covers the period between 2002 and 2011. We report t-statistics in parenthesis, and *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Equity Sales Dummy as Dependent Variable						
	Stocks			Options		
	All (1)	Graded (2)	Cliff (3)	All (4)	Graded (5)	Cliff (6)
<i>OtherMonth</i> ($\tau=-1$)	0.0062 (1.14)	0.0035 (0.58)	0.0114 (1.08)	-0.0006 (-0.1201)	-0.0004 (-0.0943)	-0.0183 (-1.2003)
<i>VestingMonth</i>	0.2347*** (24.34)	0.2337*** (22.00)	0.2169*** (13.34)	0.1394*** (18.08)	0.1384*** (17.56)	0.1374*** (4.35)
<i>OtherMonth</i> ($\tau=+1$)	0.0086 (1.55)	0.0036 (0.61)	0.0215* (1.79)	-0.0022 (-0.4677)	-0.0021 (-0.4456)	0.0067 (0.31)
<i>EAYearly</i>	0.0329*** (4.37)	0.0392*** (5.11)	0.0580*** (7.01)	0.0411*** (5.16)	0.0423*** (5.31)	0.0639*** (7.59)
<i>EAQuarterly</i>	-0.0027 (-0.9479)	-0.0027 (-0.9300)	-0.0043 (-1.4311)	-0.0032 (-1.0802)	-0.0031 (-1.0616)	-0.0044 (-1.4638)
<i>AGM</i>	0.0200*** (3.50)	0.0211*** (3.66)	0.0279*** (4.63)	0.0220*** (3.76)	0.0224*** (3.82)	0.0285*** (4.70)
<i>Board</i>	0.01 (0.60)	0.01 (0.56)	0.02 (1.23)	0.01 (0.79)	0.01 (0.80)	0.02 (1.17)
<i>EarningsSurprise</i>	0.0039*** (4.42)	0.0038*** (4.23)	0.0041*** (4.50)	0.0037*** (4.18)	0.0037*** (4.14)	0.0040*** (4.37)
$\text{Log}(1+VestedSensitivity)$	0.0045*** (3.09)	0.0046*** (3.12)	0.0041*** (2.80)	0.0044*** (3.02)	0.0044*** (3.00)	0.0040*** (2.70)
$\text{Log}(1+UnvestedSensitivity)$	0.0089*** (7.38)	0.0090*** (7.46)	0.0120*** (9.72)	0.0102*** (8.23)	0.0102*** (8.29)	0.0120*** (9.75)
Constant	-0.1517 (-1.4805)	-0.1531 (-1.4711)	-0.1705* (-1.7979)	-0.1740* (-1.6992)	-0.1616 (-1.6049)	-0.1846* (-1.9005)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	62,901	62,901	62,901	62,901	62,901	62,901
R-squared	0.1947	0.189	0.1605	0.1703	0.1696	0.1543

Table 3: Continued

Panel B: Sell-All Newly-Vested Dummy as Dependent Variable						
	Stocks			Options		
	All (1)	Graded (2)	Cliff (3)	All (4)	Graded (5)	Cliff (6)
<i>OtherMonth</i> ($\tau=-1$)	-0.0092*** (-2.8484)	-0.0092** (-2.5687)	-0.0158*** (-2.5859)	-0.0071** (-2.5004)	-0.0068** (-2.2966)	-0.0249*** (-3.6555)
<i>VestingMonth</i>	0.1492*** (23.33)	0.1447*** (20.99)	0.1440*** (10.19)	0.0837*** (16.51)	0.0836*** (16.10)	0.0706*** (3.63)
<i>OtherMonth</i> ($\tau=+1$)	0.0177*** (4.70)	0.0159*** (3.88)	0.0223*** (2.76)	0.0044 (1.43)	0.0044 (1.43)	0.0034 (0.29)
<i>EAYearlyly</i>	0.0126** (2.55)	0.0166*** (3.33)	0.0276*** (5.28)	0.0184*** (3.64)	0.0189*** (3.75)	0.0314*** (5.96)
<i>EAQuarterly</i>	-0.0021 (-1.2264)	-0.002 (-1.1784)	-0.0032* (-1.8367)	-0.0024 (-1.4175)	-0.0024 (-1.3914)	-0.0032* (-1.8223)
<i>AGM</i>	0.0091** (2.46)	0.0099*** (2.67)	0.0138*** (3.57)	0.0103*** (2.73)	0.0105*** (2.80)	0.0142*** (3.64)
<i>Board</i>	(0.00) (-0.3932)	(0.00) (-0.4093)	0.00 (0.34)	(0.00) (-0.1758)	(0.00) (-0.1670)	0.00 (0.28)
<i>EarningsSurprise</i>	0.0018*** (3.11)	0.0017*** (2.92)	0.0019*** (3.21)	0.0017*** (2.90)	0.0017*** (2.86)	0.0018*** (3.07)
<i>Log(1+ VestedSensitivity)</i>	0.00 (0.22)	0.00 (0.21)	0.00 (-0.1311)	0.00 (0.12)	0.00 (0.09)	0.00 (-0.2704)
<i>Log(1+ UnvestedSensitivity)</i>	0.0024*** (5.06)	0.0025*** (5.33)	0.0045*** (9.20)	0.0033*** (6.95)	0.0034*** (7.02)	0.0046*** (9.33)
Constant	-0.0377** (-2.5227)	-0.0397** (-2.5264)	-0.0530*** (-5.0194)	-0.0536*** (-3.7230)	-0.0465*** (-3.5001)	-0.0599*** (-5.2085)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	62,901	62,901	62,901	62,901	62,901	62,901
R-squared	0.1015	0.0934	0.0662	0.0738	0.0732	0.0586

Table 4: Timing of News Events Around the Vesting Month

In this table, we report the estimates of a log-linear model for the count of the number of corporate news events in equity vesting months under the assumption of a Poisson error structure. We use the following specification: $NewsEvent_{s,t} = \alpha + \beta * VestingMeasure_{s,t} + \rho * \sum_{\tau \in \{-1,+1\}} OtherMonth_{s,t+\tau} + \gamma * Controls + \text{Fixed Effects} + \epsilon_{s,t}$ where $NewsEvent_{s,t}$ is a variable that counts the number of corporate news events (either discretionary or non-discretionary, or any particular news item such as corporate guidance) released by firm s during month t . In Panel A, we use as our main independent variable ($VestingMeasure$) an indicator function that equals one if a particular month is a vesting month ($VestingMonth$), and zero otherwise. We also include the months surrounding the vesting month, using the function $OtherMonth_{s,t+\tau}$, which indicates the month that is τ apart from the vesting month t . If $\tau \in \{-1,+1\}$ then the function indicates the month immediately before the vesting month, and the month immediately after the vesting month. In Panel B, our main independent variable ($VestingMeasure$) is equal to the sensitivity of newly-vesting equity to changes in the stock price ($\text{Log}(1+VestingSensitivity)$), which captures CEO incentives to influence the stock price. Except for the main independent variables, both Panels A and B are identical. In column (1), we do not control for any other factors that could affect the amount of news releases in a particular month. In columns (2) to (4), we control for other periodic events that are newsworthy but not related to vesting, as well as analyst coverage. We also control for other components of CEO compensation in column (5), including the sensitivity of vested and unvested equity. The list of controls includes variables that are intended to capture the information environment of the firm. We also control for firm, year, and month fixed effects. A detailed description of each control variable is included in Appendix A. The correlation matrix of the main variables used in this study is presented in Appendix C. We report t-statistics in parenthesis, and *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively.

PANEL A: Vesting Month Dummy as Main Independent Variable					
Dependent Variable:	Discretionary (1)	Discretionary (2)	Non-Discretionary (3)	Guidance (4)	Discretionary (5)
<i>OtherMonth</i> ($\tau=-1$)	-0.0227** (-2.5097)	-0.0342*** (-3.7142)	-0.1051*** (-4.4918)	-0.0482 (-1.3567)	-0.0416*** (-3.9577)
<i>VestingMonth</i>	0.0615*** (7.07)	0.0282*** (3.17)	-0.0163 (-0.7605)	0.0578* (1.70)	0.0432*** (4.28)
<i>OtherMonth</i> ($\tau=+1$)	-0.0448*** (-5.1165)	-0.0168* (-1.8999)	-0.1339*** (-5.7085)	-0.0187 (-0.5131)	-0.0194* (-1.9105)
<i>EAYearly</i>		0.0593*** (4.49)	0.5303*** (19.06)	0.5583*** (13.29)	0.0436*** (2.88)
<i>EAMquarterly</i>		0.2737*** (44.83)	0.9706*** (82.07)	0.9136*** (46.16)	0.2942*** (39.79)
<i>AGM</i>		0.1022*** (8.66)	1.1754*** (52.47)	0.1254*** (2.71)	0.0834*** (6.11)
<i>Board</i>		0.4969*** (22.24)	0.1063** (1.96)	0.2369** (2.55)	0.4571*** (18.14)
<i>EarningsSurprise</i>		0.0042** (2.19)	0.0367*** (10.37)	0.0310*** (5.37)	0.0022 (1.00)
<i>Analyst</i>		0.0163*** (11.34)	0.0021 (0.56)	0.0207*** (3.49)	0.0161*** (9.77)
<i>Salary</i>					(0.01)
<i>Bonus</i>					(-0.6793)
$\text{Log}(1+VestedSensitivity)$					(0.00)
$\text{Log}(1+UnvestedSensitivity)$					(-0.7474)
					0.0128***
					(3.13)
					0.00
					(1.62)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	36,216	34,971	34,322	31,534	26,297

Table 4: Continued

PANEL B: Sensitivity of Newly-Vested Equity as Main Independent Variable					
Dependent Variable:	Discretionary (1)	Discretionary (2)	Non-Discretionary (3)	Guidance (4)	Discretionary (5)
<i>Log(1+ VestingSensitivity)</i>	0.0066*** (7.13)	0.0028*** (2.90)	-0.0003 (-0.1233)	0.0054 (1.45)	0.0050*** (4.55)
<i>EAYearlyly</i>		0.0543*** (4.26)	0.4956*** (18.57)	0.5511*** (13.67)	0.0532*** (3.64)
<i>EAQuarterly</i>		0.2728*** (45.16)	0.9737*** (83.28)	0.9111*** (46.71)	0.2839*** (38.97)
<i>AGM</i>		0.1084*** (9.30)	1.1792*** (53.39)	0.1252*** (2.73)	0.0999*** (7.46)
<i>Board</i>		0.5019*** (23.18)	0.1018* (1.94)	0.2373*** (2.66)	0.4701*** (19.09)
<i>EarningsSurprise</i>		0.0046** (2.40)	0.0366*** (10.51)	0.0304*** (5.36)	0.0019 (0.85)
<i>Analyst</i>		0.0169*** (11.93)	0.0028 (0.76)	0.0213*** (3.66)	0.0160*** (9.84)
<i>Salary</i>					0.01 (1.56)
<i>Bonus</i>					(0.00) (-0.8793)
<i>Log(1+ VestedSensitivity)</i>					0.00 (0.28)
<i>Log(1+ UnvestedSensitivity)</i>					0.00 (1.14)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	37,683	35,805	35,138	32,297	26,862

Table 5: News Releases and Equity Sales

In this table, we report the estimates of a two-stage least-squares instrumental variable model of the impact of CEO trading needs on the timing of corporate news releases. In the first column (“First Stage”), we present the results from the first-stage regression, which is similar to that used in Table 3. In the remaining three columns, under the title “Second Stage,” we link the instrumented trading indicator to news releases. We present the second-stage results for discretionary news (column (1)), non-discretionary news (column (2)) and guidance (column (3)). A detailed description of each control variable is included in Appendix A. We report t-statistics in parenthesis, and *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively.

	First Stage	Second Stage		
		Discretionary (1)	Non-Discretionary (2)	Guidance (3)
<i>VestingMonth</i>	0.1625*** (23.47)			
<i>TradingMonth</i>		0.1550*** (3.97)	0.019 (0.36)	0.0373** (2.12)
<i>EAYearly</i>	0.0288*** (3.79)	0.0304*** (4.47)	0.0299*** (3.08)	0.0438*** (12.12)
<i>EAQuarterly</i>	-0.0044 (-1.4910)	0.1933*** (29.13)	0.5294*** (36.41)	0.1084*** (28.95)
<i>AGM</i>	0.0187*** (3.16)	0.0674*** (8.57)	0.6051*** (36.21)	0.0026 (0.72)
<i>Board</i>	0.01 (0.55)	0.5810*** (18.93)	0.2195*** (5.48)	0.0389*** (2.62)
<i>EarningsSurprise</i>	0.0045*** (5.16)	0.0019 (1.36)	0.0092*** (3.33)	0.0060*** (5.95)
<i>Analyst</i>	-0.0017* (-1.6816)	0.0081*** (6.75)	(0.00) (-1.4441)	0.0016*** (4.27)
Constant	0.1101* (1.91)			
Firm Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Cluster by Firm	Yes	Yes	Yes	Yes
Observations	62,599	103,307	103,307	103,307
R-squared	0.184			
F-stat	60.7			

Table 6: Reactions to News Events in the Vesting Month

In this table, we report the results of an event study on the reaction of stock returns and trading volume to the release of news around vesting and non-vesting months. We denote by DV the discretionary news that are released in vesting months, and by DNV those that are released in non-vesting months. We denote by NDV the non-discretionary news if released in vesting months, and by NDNV if released in non-vesting months. We denote by GV the corporate guidance if released in vesting months, and by GNV is released in non-vesting months. In Panel A, we report the results of a univariate analysis. We show the average cumulative abnormal return and average daily abnormal trading volume for event windows of 2, 16, and 31 days, including the news release day. The cumulative abnormal return is the raw buy-and-hold return adjusted using the estimated beta from the market model. We obtain $\hat{\beta}$ from the regression $R_{s,d} = \alpha_{s,\tau} + \beta_{s,\tau} * R_{m,d} + \epsilon_{s,\tau}$ for days $d \in \{\tau - 255, \tau\}$, where $R_{s,d}$ is the return of firm s on day d , and $R_{m,d}$ is the market return on day d . Given the estimated beta, the cumulative abnormal return for period $[h, H]$ is given by: $AbRet_{s,\tau h,H} = \left[\prod_{j=\tau+h}^{\tau+H} (1 + R_{s,j}) \right] - 1 - \hat{\beta}_{s,\tau} \left(\left[\prod_{j=\tau+h}^{\tau+H} (1 + R_{m,j}) \right] - 1 \right)$ which is calculated from the close of trading day $\tau - 1$ to the close on trading day $\tau + H$. We report the cases in which $\tau = -46$, $h = 0$, and $H \in \{1, 15, 30\}$. The average daily abnormal trading volume is adjusted by its average value in the 40 days prior to the start of the event-study window. The results on average daily abnormal trading volume exclude the effect of CEOs' own trades. In Panels B and C we perform a multivariate analysis, in which we regress the event-study returns on an array of indicator variables for other newsworthy months not related with vesting. This is to filter out the effect of these other newsworthy months from the abnormal returns, and isolate the contribution of discretionary news and corporate guidance. In Panel B we present a multivariate analysis for discretionary and non-discretionary news. In Panel C, we run the multivariate analysis only for corporate guidance. We report t-statistics in parenthesis, and *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. Finally, below Panels B and C we perform a test of the difference in returns between vesting and non-vesting months, for each type of news (D, ND, and G), for which we report the resulting p-value.

Panel A: Univariate Analysis						
	Abnormal Returns (Basis Points)			Abnormal Trading Volume (Percent)		
	[0, 1]	[0, 15]	[0, 30]	[0, 1]	[0, 15]	[0, 30]
<u>Vesting Months:</u>						
Discretionary (DV)	25.00*** (7.93)	27.78*** (4.54)	14.26* (1.69)	0.3191*** (31.53)	0.0335*** (7.47)	-0.0021 (-0.51)
Non-Discretionary (NDV)	28.01*** (4.16)	32.91*** (2.73)	18.54 (1.15)	0.6345*** (39.29)	0.0984*** (13.00)	0.0319*** (4.69)
Guidance (GV)	75.55*** (3.99)	118.52*** (4.42)	101.26*** (3.01)	1.2296*** (24.68)	0.1850*** (11.29)	0.0576*** (4.32)
<u>Non-Vesting Months:</u>						
Discretionary (DNV)	17.27*** (11.26)	30.62*** (11.15)	22.26*** (5.88)	0.2730*** (57.94)	0.0229*** (10.73)	-0.0069*** (-3.67)
Non-Discretionary (NDNV)	21.79*** (6.67)	54.26*** (9.41)	52.81*** (6.79)	0.6445*** (71.45)	0.1042*** (25.50)	0.0339*** (9.63)
Guidance (GNV)	-5.33 (-0.57)	22.74* (1.73)	21.9 (1.32)	1.2008*** (38.88)	0.1790*** (19.35)	0.0607*** (7.80)
<hr/>						
Panel B: Multivariate Analysis						
	Abnormal Returns (Basis Points)			Abnormal Trading Volume (Percent)		
	[0, 1]	[0, 15]	[0, 30]	[0, 1]	[0, 15]	[0, 30]
DV	25.01*** (7.00)	27.85*** (4.39)	14.64* (1.69)	0.3198*** (29.71)	0.0334*** (7.08)	-0.0019 (-0.46)
NDV	24.85*** (3.94)	24.04** (2.15)	10.94 (0.72)	0.6546*** (34.43)	0.0984*** (11.80)	0.0308*** (4.21)
DNV	17.33*** (10.69)	30.55*** (10.61)	22.16*** (5.64)	0.2723*** (55.76)	0.0225*** (10.48)	-0.0069*** (-3.66)
NDNV	17.37*** (5.17)	43.77*** (7.34)	42.42*** (5.22)	0.6549*** (64.75)	0.1024*** (23.08)	0.0320*** (8.22)
<i>EAQuarterly</i>	25.02*** (3.75)	63.19*** (5.34)	74.24*** (4.60)	0.2100*** (10.46)	0.0437*** (4.96)	0.0227*** (2.94)
<i>AGM</i>	-7.88 (-0.90)	-21.05 (-1.36)	-47.67** (-2.26)	-0.5368*** (-20.43)	-0.0731*** (-6.34)	-0.0263*** (-2.60)
<i>Board</i>	-23.94 (-1.12)	18.89 (-0.50)	15.03 (-0.29)	-0.0896 (-1.40)	0.0611** (2.17)	0.0495** (2.00)
Observations	183,826	183,793	183,755	183,825	183,787	183,745
R-squared	0.0011	0.0015	0.0009	0.0409	0.0035	0.0006
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Test: DV-DNV=0	7.68	-2.7	-7.52	0.0475	0.0109	0.005
p-value	0.05	0.68	0.41	0.00	0.03	0.29
<hr/>						
Test: NDV-NDNV=0	7.48	-19.73	-31.48	-0.0003	-0.004	-0.0012
p-value	0.31	0.07	0.04	0.67	0.55	0.86

Table 6: Continued

Panel C: Corporate Guidance						
	Abnormal Returns (Basis Points)			Abnormal Trading Volume (Percent)		
	[0, 1]	[0, 15]	[0, 30]	[0, 1]	[0, 15]	[0, 30]
GV	43.63*** (7.40)	103.71*** (9.91)	111.48*** (7.81)	0.8649*** (48.27)	0.1454*** (18.67)	0.0545*** (7.97)
GNV	10.95 (1.34)	18.89 (1.31)	-11.36 (-0.58)	0.1181*** (4.77)	0.0285*** (2.65)	0.0055 (0.58)
<i>EAQuarterly</i>	-4.89 (-0.23)	48.83 (1.29)	35.50 (0.69)	0.1934*** (2.99)	0.0860*** (3.06)	0.0437* (1.77)
<i>AGM</i>	77.81*** (5.48)	123.56*** (4.91)	106.10*** (3.09)	1.2289*** (28.49)	0.1854*** (9.89)	0.0579*** (3.52)
<i>Board</i>	-5.57 (-0.80)	22.42* (1.82)	22.02 (1.31)	1.2013*** (57.03)	0.1786*** (19.50)	0.0607*** (7.55)
Observations	183,826	183,793	183,755	183,825	183,787	183,745
R-squared	0.0004	0.001	0.0008	0.0257	0.0033	0.0005
Test: GV-GNV=0	32.68	84.82	122.84	0.7468	0.1169	0.049
p-value	0.00	0.00	0.03	0.56	0.74	0.88

Table 7: Robustness Tests

In this table, we test the robustness of our main findings in Table 4 to alternative samples and measurement choices. We use the same specification as that in column (2) of Table 4, unless otherwise noted. In Panel A, our main independent variable is an indicator function that equals one if a particular month is a vesting month (*VestingMonth*), and zero otherwise. In column (1), we restrict our sample to firms that were part of the S&P 500 at some point during the period between 1994 and 2011. In column (2), we restrict our sample to firms covered in the Equilar database, which covers Russell 3000 firms from 2006 to 2011. In column (3), we control for grant award months, and add award month fixed effects. In column (4), we run a placebo test by randomizing the vesting months. In column (5), we exclude from our sample all the equity-based grants that include a performance-vesting provision. In column (6), we look at restricted stock only, and in column (7) we look at options only. In Panel B, our main independent variable is instead the sensitivity of newly-vesting equity to changes in the stock price ($\text{Log}(1+\text{VestingSensitivity})$), which captures CEO incentives to influence the stock price. The three specifications presented in Panel B exactly replicate the first three from Panel A (except that we use *GrantSensitivity* instead of *GrantMonth* in column (4)). A detailed description of each control variable is included in Appendix A. We report t-statistics in parenthesis, and *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively.

		Panel A: Vesting Month Indicator						
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
Sample		S&P 500	Equilar	All	All	No Performance-Based Vesting	All	All
Stock/Options		All	All	All	All	All	Stock	Options
<i>VestingMonth</i>		0.0350*** (3.58)	0.0362*** (5.03)	0.0359*** (5.07)		0.0340*** (4.61)	0.0359*** (2.69)	0.0462*** (4.37)
<i>Random VestingMonth</i>					0.0108 (1.57)			
Fixed Effects (Firm+Year+Month)		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Controls		No	No	<i>GrantMonth</i>	No	No	No	No
Number of Observations		21,504	52,249	54,657	50,477	57,576	57,576	57,576
		Panel B: Vesting Sensitivity						
		(1)	(2)	(3)				
Sample		S&P 500	Equilar	All				
Stock/Options		All	All	All				
$\text{Log}(1+\text{VestingSensitivity})$		0.0020** (2.14)	0.0028*** (3.65)	0.0021*** (2.77)				
Fixed Effects (Firm+Year+Month)		Yes	Yes	Yes				
Additional Controls		No	No	<i>GrantSensitivity</i>				
Number of Observations		21,879	53,624	55,998				

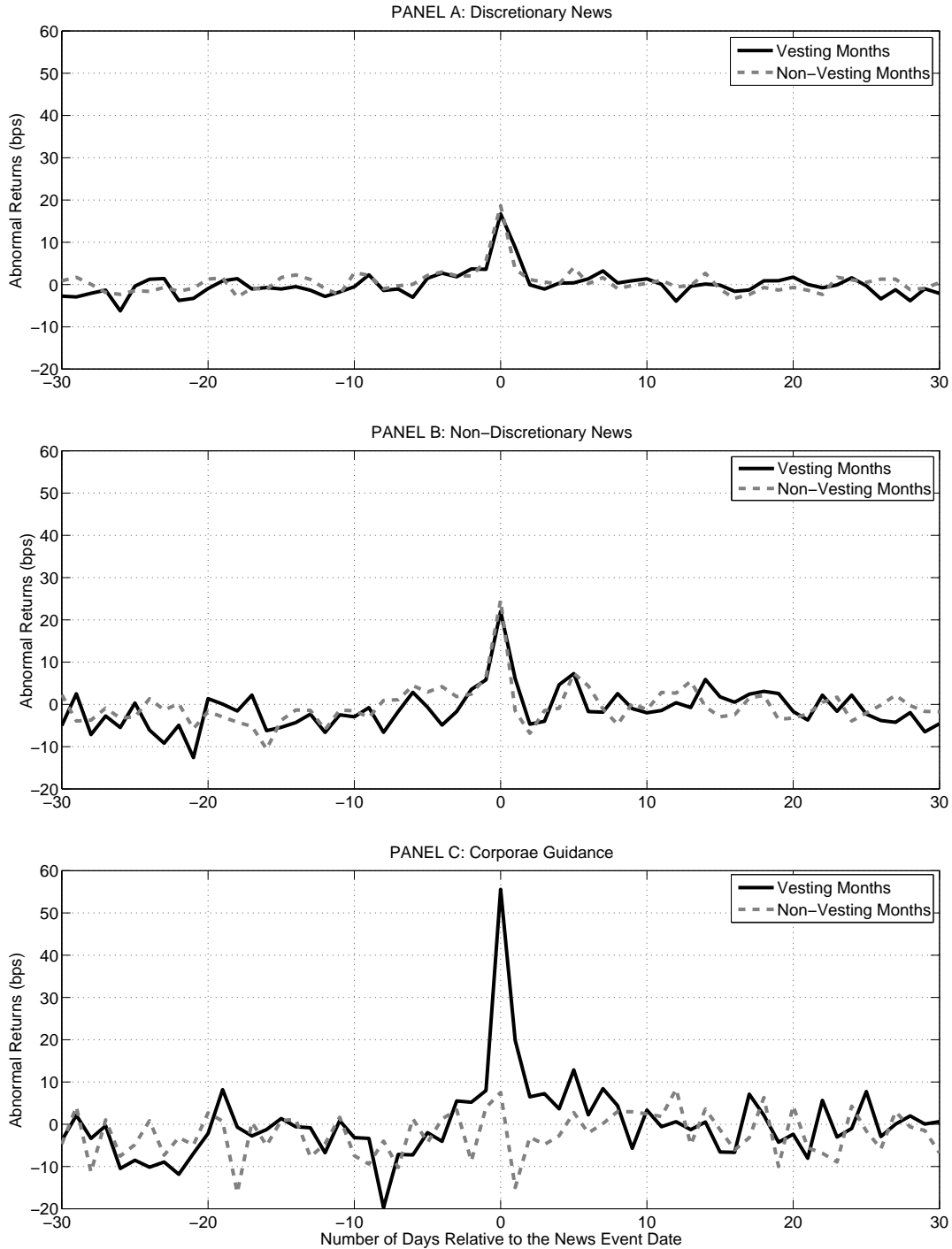


Figure 1: Stock Return Reaction to Corporate News Events

This figure shows the reaction of stock returns to the release of corporate news. It reports the cases in which the event date falls in the CEO equity vesting month (*Vesting Months*) and when it falls in non-vesting months (*Non-Vesting Months*). Panel A shows the return reaction to discretionary news. Panel B shows the return reaction to the release of non-discretionary news. Panel C shows the reaction to one specific type of discretionary news: corporate guidance, which is the main type of voluntary disclosures studied in Balakrishnan, Billings, Kelly, and Ljungqvist (2013). In all three graphs, the event-study window spans from 30 days before the news release date until 30 days after.

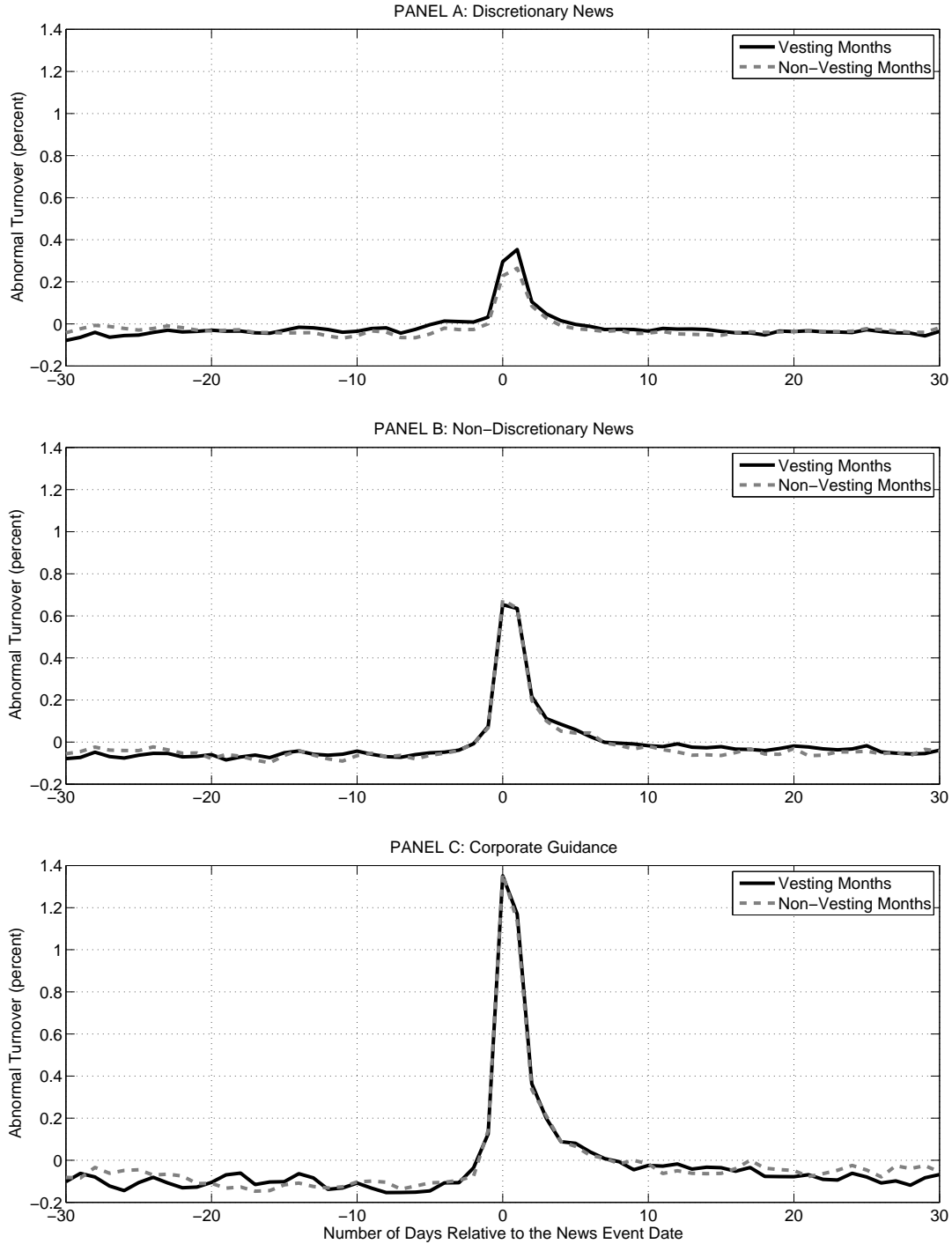


Figure 2: Abnormal Turnover Around Corporate News Events

This figure shows the reaction of trading volume to the release of news. In particular, it reports the ratio of the abnormal trading volume to the number of shares outstanding (*Abnormal Turnover*), for the cases in which the event date falls in the CEO equity vesting month (*Vesting Months*) and when it falls in non-vesting months (*Non-Vesting Months*). Panel A shows the trading volume reaction to discretionary news. Panel B shows the volume reaction to the release of non-discretionary news. Panel C shows the reaction to one specific type of discretionary news: corporate guidance, which is the main type of voluntary disclosures studied in Balakrishnan, Billings, Kelly, and Ljungqvist (2013). In all three graphs, the event-study window spans from 30 days before the news release date until 30 days after.

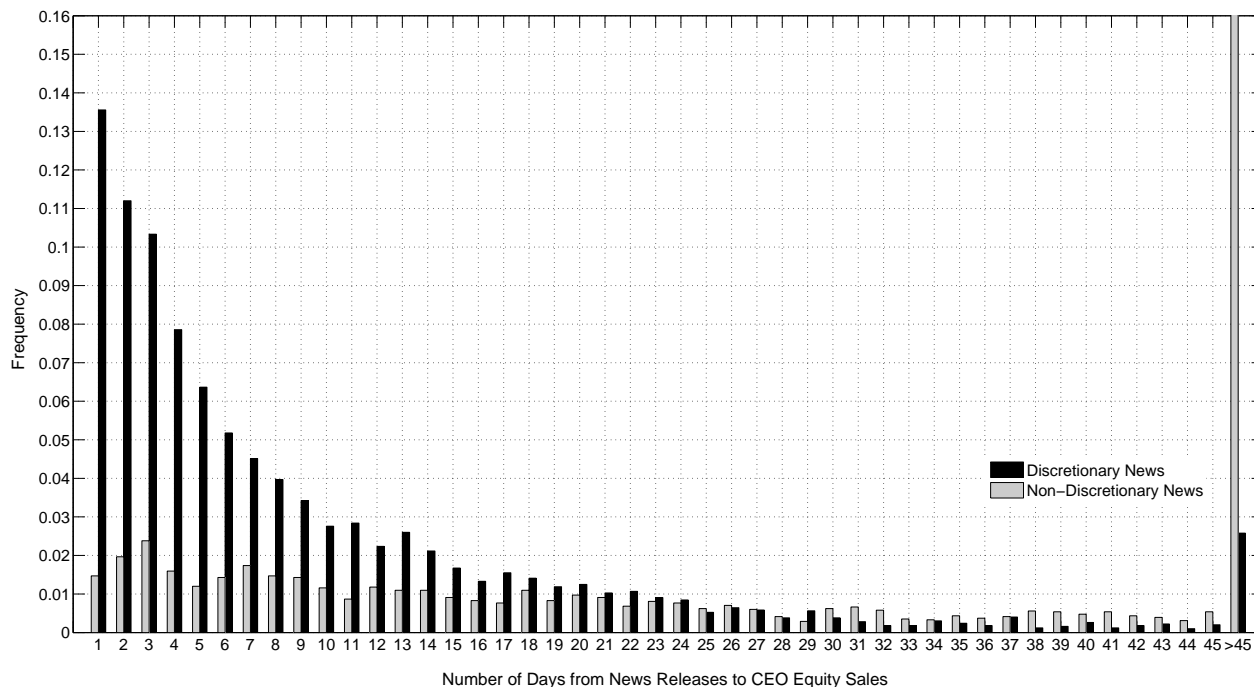


Figure 3: Number of Days from News Releases to CEO Sales

This figure reports the distribution of the distance (in trading days) between the date of the release of corporate news and the first observed equity sale of the CEO. We show the results separately for discretionary news items, which release timing is likely under the control of the CEO, and non-discretionary news items that are likely out of the CEO’s control. We consider only news released in vesting months. We truncate the y-axis at 0.16 for better visualization of the graph. In fact, the frequency bar for non-discretionary news and more than 45 days between the release of news and the first CEO sale (> 45), has a value of 0.61. All the news items are obtained from the Capital IQ database, which covers the period from 2002 to 2011.

Appendix A: Variable Definitions

Variable	Definition
<i>AGM</i>	is an indicator function that equals one if a particular month coincides with the firm's annual general meeting, and equals zero otherwise.
<i>Analyst</i>	is the log of one plus the number of analysts following a particular stock. The number of analysts is obtained from the I/B/E/S detailed files.
<i>Board</i>	is an indicator that equals one if a particular month coincides with the firm's board meeting, and equals zero otherwise.
<i>Bonus</i>	is the log of the cash bonus received by the CEO in a given year, which we obtain from ExecuComp.
<i>Cliff</i>	denotes a sample split that focuses on CEO equity grants that vest entirely at a specific time.
<i>Corporate Guidance</i>	is a news item from the Capital IQ database over which CEOs are likely to have immediate discretion. Balakrishnan, Billings, Kelly, and Ljungqvist (2013) focus their study on this item, considering this form of guidance regarding firms' quarterly EPS numbers to be the most prominent performance measure that a firm supplies to investors.
<i>EAQuarterly</i>	is an indicator function that equals one if a particular month coincides with the firm's announcement of quarterly earnings, and equals zero otherwise.
<i>EAYearly</i>	is an indicator function that equals one if a particular month coincides with the firm's fiscal year end, and equals zero otherwise.
<i>EarningsSurprise</i>	is the earnings surprise measure (SUE) from the I/B/E/S database.
<i>EquitySales</i>	is either equal to <i>EquitySalesDummy</i> or equal to <i>EquitySalesAll</i> , which definitions are provided below.
<i>EquitySalesDummy</i>	is an indicator function that equals one if there is a CEO equity sale in a given month, and zero otherwise.
<i>EquitySalesAll</i>	is an indicator function that equals one when in a particular month the cumulative equity sales of a CEO adds up to the amount of equity that vested in the most recent vesting month, and zero otherwise.
<i>Graded</i>	denotes a sample split that isolates CEO equity grants that vest gradually over a period of time.
<i>GrantMonth</i>	is an indicator that equals one if there is an equity grant award in that month, and equals zero otherwise.
<i>GrantSensitivity</i>	is the dollar sensitivity of the CEO's granted equity to a 100% change in the stock price. This measure is mostly applicable to option grants and captures the incentive of the CEO to decrease the strike price of those options in order to increase their intrinsic value.

<i>OtherMonth</i>	is an indicator function that equals one if a given month is a certain distance (in months) away from the vesting month, and equals zero otherwise.
<i>RandomVestingMonth</i>	is a randomly drawn vesting used to run a placebo test on our main specification.
<i>Salary</i>	is the log of the base salary received by the CEO in a given year, which we obtain from ExecuComp.
<i>Trading Volume</i>	is the ratio of the daily number of shares traded, normalized by the number of shares outstanding.
<i>UnvestedSensitivity</i>	is the sensitivity of the CEO's unvested equity to a 100% change in the stock price.
<i>VestedSensitivity</i>	is the dollar sensitivity of the already-vested equity that the CEO is voluntarily holding for the long-term, e.g. for control, investment, or signaling purposes.
<i>Vesting Period</i>	is the number of years from grant year to the year in which the whole grant has become vested. When the grant year is unavailable (in proxy statements), we assume that it is the fiscal year.
<i>VestingMonth</i>	is the calendar month in which stock and option grants are pre-scheduled to vest according to the Equilar database and manual identification.
<i>VestingSensitivity</i>	is the dollar sensitivity of the CEO's newly-vesting equity to a 100% change in the stock price.

Appendix B: Distribution of Corporate News Events

Panel A: Discretionary News Items	Percentage of All Events	
	All Months	Vesting Months
Company Conference Presentations	11.936%	14.208%
Conferences	8.582%	11.962%
Earnings Calls	8.764%	9.243%
Earnings Release Date	8.291%	8.753%
Client Announcements	8.467%	7.566%
Product-Related Announcements	7.742%	7.533%
Executive/Board Changes - Other	6.202%	5.687%
Buyback Update	3.025%	3.367%
Fixed Income Offerings	3.557%	3.223%
Dividend Affirmations	3.172%	3.131%
M&A Transaction Closings	3.423%	2.645%
Shelf Registration Filings	1.696%	1.749%
M&A Transaction Announcements	2.266%	1.503%
Buybacks	1.351%	1.405%
Debt Financing Related	1.392%	1.179%
Business Expansions	1.543%	1.118%
Changes in Company Bylaws/Rules	0.804%	1.045%
Strategic Alliances	1.055%	1.025%
Lawsuits & Legal Issues	0.961%	0.801%
Dividend Increases	0.706%	0.797%
Shareholder/Analyst Calls	0.578%	0.653%
Private Placements	0.858%	0.634%
Corporate Guidance - New/Confirmed	0.581%	0.512%
Follow-on Equity Offerings	0.689%	0.490%
Seeking Acquisitions/Investments	0.320%	0.342%
Analyst/Investor Day	0.193%	0.289%
Special Calls	0.289%	0.256%
Preferred Dividend	0.228%	0.228%
M&A Calls	0.191%	0.142%
Sales/Trading Statement Calls	0.135%	0.120%
Delayed SEC Filings	0.259%	0.114%
M&A Transaction Cancellations	0.132%	0.091%
Corporate Guidance - Raised	0.149%	0.085%
Executive Changes - CFO	0.126%	0.079%
Guidance/Update Calls	0.123%	0.079%
Corporate Guidance - Lowered	0.131%	0.069%
Business Reorganizations	0.077%	0.051%
Labor-related Announcements	0.072%	0.049%
Dividend Decreases	0.023%	0.043%
Seeking to Sell/Divest	0.038%	0.039%
Executive Changes - CEO	0.066%	0.033%
Subtotal	90.193%	92.339%

(Continues on the next page)

Appendix B: Continued

Panel A: Discretionary News Items (Cont.)	Percentage of All Events	
	All Months	Vesting Months
Special Dividend Announced	0.031%	0.033%
Impairments/Write Offs	0.037%	0.030%
Spin-Off/Split-Off	0.047%	0.028%
Restatements of Operating Results	0.042%	0.022%
Composite Units Offerings	0.015%	0.020%
Delayed Earnings Announcements	0.022%	0.018%
Seeking Financing/Partners	0.013%	0.018%
Address Changes	0.027%	0.016%
M&A Rumors and Discussions	0.010%	0.016%
Potential Buyback	0.008%	0.008%
Dividend Initiation	0.005%	0.006%
IPOs	0.128%	0.006%
Exchange Changes	0.007%	0.004%
Fiscal Year End Changes	0.007%	0.004%
Name Changes	0.016%	0.004%
Dividend Cancellation	0.005%	0.002%
Debt Defaults	0.002%	0.000%
Legal Structure Changes	0.003%	0.000%
Structured Products Offerings	0.000%	0.000%
Ticker Changes	0.015%	0.000%
Subtotal	0.440%	0.238%
Total Discretionary	90.633%	92.577%
Panel B: Non-Discretionary News Items	Percentage of All Events	
	All Months	Vesting Months
Announcements of Earnings	6.085%	3.922%
Annual General Meeting	2.180%	2.521%
Board Meeting	0.349%	0.466%
Auditor Changes	0.256%	0.205%
End of Lock-Up Period	0.306%	0.183%
Delistings	0.154%	0.100%
Regulatory Agency Inquiries	0.033%	0.026%
Bankruptcy - Emergence/Exit	0.001%	0.000%
Bankruptcy - Filing	0.002%	0.000%
Bankruptcy - Other	0.003%	0.000%
Total Non-Discretionary	9.367%	7.423%
Total	100%	100%

Appendix C: Correlation of Main Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<i>All News</i>	1.00													
<i>Discretionary News</i>	0.98	1.00												
<i>Non-Discretionary News</i>	0.49	0.33	1.00											
<i>TradingMonth</i>	0.03	0.03	0.03	1.00										
<i>VestingMonth</i>	0.03	0.02	0.04	0.20	1.00									
<i>Graded</i>	0.03	0.02	0.04	0.20	0.96	1.00								
<i>Cliff</i>	0.01	0.01	0.02	0.09	0.33	0.13	1.00							
<i>EAYearly</i>	0.07	0.04	0.15	0.09	0.23	0.22	0.10	1.00						
<i>EAYquarterly</i>	0.18	0.10	0.46	0.03	0.06	0.06	0.03	0.37	1.00					
<i>AGM</i>	0.10	0.05	0.29	0.03	0.03	0.03	0.01	-0.08	0.08	1.00				
<i>Board</i>	0.10	0.09	0.09	0.01	0.02	0.01	0.01	0.03	0.04	0.03	1.00			
<i>Log(1+VestingSensitivity)</i>	0.04	0.03	0.04	0.22	0.94	0.90	0.36	0.24	0.07	0.03	0.02	1.00		
<i>Log(1+VestedSensitivity)</i>	0.08	0.09	0.01	0.05	0.01	0.01	0.03	0.00	0.02	0.00	0.00	0.04	1.00	
<i>Log(1+UnvestedSensitivity)</i>	0.10	0.11	0.02	0.08	0.04	0.04	0.01	-0.02	0.02	0.03	-0.01	0.10	0.35	1.00

Appendix D: Distribution of Events in the Calendar Year

	<i>VestingMonth</i>	<i>GrantMonth</i>	<i>EAYearly</i>	<i>EAQuarterly</i>	<i>AGM</i>	<i>Board</i>
January	11.9%	12.1%	16.7%	6.2%	1.8%	10.2%
February	16.6%	23.2%	45.4%	13.0%	2.2%	10.5%
March	12.8%	13.7%	16.5%	4.5%	2.0%	8.7%
April	6.4%	5.5%	1.5%	11.5%	14.9%	6.4%
May	9.3%	8.7%	2.8%	11.6%	48.3%	11.8%
June	6.4%	4.8%	2.2%	1.6%	16.0%	4.1%
July	5.8%	4.3%	1.8%	12.5%	2.6%	8.1%
August	6.5%	5.5%	3.9%	11.7%	3.1%	9.2%
September	4.8%	3.8%	1.6%	1.5%	2.2%	4.7%
October	5.1%	4.2%	1.9%	12.8%	1.9%	10.8%
November	5.9%	5.9%	3.8%	11.5%	3.1%	8.4%
December	8.4%	8.2%	1.8%	1.5%	1.9%	7.0%