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Lucky CEOs and Lucky Directors

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ABSTRACT

We study the relation between opportunistic timing of option grants and corporate governance failures, focusing on "lucky" grants awarded at the lowest price of the grant month. Option grant practices were designed to provide lucky grants not only to executives but also to independent directors. Lucky grants to both CEOs and directors were the product of deliberate choices, not of firms' routines, and were timed to make them more profitable. Lucky grants are associated with higher CEO compensation from other sources, no majority of independent directors, no outside blockholder on the compensation committee, and a long-serving CEO.

THE OPPORTUNISTIC TIMING of executives' option grants—via backdating, "spring-loading" based on the use of inside information, or otherwise—has attracted a great deal of attention. The SEC and a small army of private law firms hired by companies have investigated past grant practices. More than 200 companies have come under scrutiny, and dozens of executives and directors have been forced to resign.

Work in financial economics has contributed substantially to identifying the existence of opportunistic timing. The literature on the timing of option grants begins with the seminal work by Yermack (1997), who shows that stock prices exhibited negative abnormal returns prior to a grant date and positive abnormal returns afterward. Aboody and Kasznik (2000) and Chauvin and Shenoy (2001) suggest that these return patterns were partly due to the manipulation of firms' information disclosures, while Lie (2005) provides evidence that backdating was an important cause of the abnormal stock returns preceding and following grant dates. Collins, Gong, and Li (2005), Heron and Lie (2007), and Narayanan and Seyhun (2006) show that the patterns of pre- and postgrant

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returns were influenced by the adoption of the Sarbanes-Oxley Act (SOX), which is consistent with the existence of backdating given that SOX made backdating more difficult.

In this paper, we contribute to understanding the corporate governance determinants and implications of opportunistic option timing practices. Overall, our analysis provides support for the view that opportunistic timing practices reflect governance breakdowns and raise governance concerns. In particular, we find that: opportunistic timing was correlated with factors associated with greater CEO influence on corporate decision-making, such as a lack of a majority of independent directors or a long-serving CEO; grants to independent directors were also opportunistically timed, and this timing was not merely a byproduct of simultaneous awards to executives or of firms routinely timing all option grants; and lucky grants to independent directors were associated with more CEO luck and CEO compensation. We also find that, rather than being a substitute for other forms of compensation, gains from opportunistic timing were awarded to CEOs with larger total compensation from other sources, and opportunistic timing was not driven by firm habit but rather, for any given firm, the use of such timing was itself timed to increase its profitability for recipients.

We study the universe of all at-the-money, unscheduled option grants awarded to the CEOs and independent directors of public companies during the decade of 1996 to 2005. Our investigation focuses on "lucky" grants, which are grants given at the lowest price of the month. Opportunistic timing can result in an abnormally high fraction of grants being "lucky grants." In our sample, about 15% of the grants to CEOs and 11% of the grants to directors were lucky before the adoption of the SOX. We contribute to prior and current work on opportunistic timing by investigating several questions and hypotheses that are relevant to assessing the corporate governance significance and the determinants of opportunistic timing practices.

To begin, we provide the first evidence that grants to independent directors were affected by opportunistic timing in ways that link director luck and CEO luck. Even though the existence of opportunistically timed option grants to executives is widely recognized, it has generally been assumed that independent directors, who play an important oversight role in the current model of corporate governance, did not benefit directly from such timing. We show, however, that awards to independent directors were themselves opportunistically timed.

We further show that the timing of director grants was not a mere byproduct of director grants being awarded at the same time as executive grants. In particular, for any given firm and CEO, we find that the odds of a CEO grant being lucky were significantly higher when the independent directors of the firm received grants on the same date. In addition, director grant events not coinciding with awards to executives were also opportunistically timed and, moreover, were more likely to be lucky when the CEO received a lucky grant in the same or prior year. We also show that the timing of director grants was not a byproduct of firms routinely timing all option grants; all of our results concerning director luck continue to hold when one removes from the data (the small number of) firms that provided lucky grants to all grant recipients. By

providing evidence that timing practices were structured in a manner consistent with making independent directors beneficiaries of these practices, we contribute an important input for assessing the role of independent directors both in connection with opportunistic timing practices and more generally.

Our second contribution is to provide the first analysis of the relation between opportunistic timing and total reported compensation. We test, but do not find support for, the hypothesis that gains from opportunistic timing were a substitute for other means of compensation. Controlling for size, performance, tenure, and other firm and CEO characteristics that determine compensation, CEOs benefiting from lucky grants also received significantly higher total compensation from other sources. Also, consistent with the hypothesis that independent directors who received lucky grants themselves were less inclined to provide a check on compensation decisions, we find that total CEO compensation was higher (controlling for standard compensation determinants) in firms that granted lucky grants to independent directors.

In the course of analyzing the relation between total reported compensation and gains from opportunistic timing, we derive estimates of the latter. In contrast to suggestions that the potential gains to CEOs from opportunistically timed grants might have been rather limited (see, for example, Walker (2006)), our (conservative) estimates indicate that these gains were rather significant. We estimate that the gain to CEOs from lucky grants due to opportunistic timing exceeded, on average, 20% of the reported value of the grant, and added, on average, more than 10% to the CEO's total reported compensation for the year.[1]

Our third contribution is to identify an association between opportunistic timing of CEOs' and independent directors' grants and certain aspects of firm governance and management. In particular, we find that opportunistic timing was correlated with variables associated with CEO influence over the internal decision-making processes: the lack of a majority of independent directors on the board and long CEO tenure. In addition, we find that a majority of independent directors on the board is only effective at reducing CEO luck if the independent directors themselves did not receive lucky grants. We further find that, although the existence of an independent compensation committee was not itself associated with a reduced likelihood of opportunistic timing, an independent committee with at least one large blockholder on it was associated with such a reduction. Our results highlight that the effectiveness of independent directors could well depend on factors other than their formal classification as independent.[2]

[1]Bernile and Jarrell (2009), Narayanan, Schipani, and Seyhun (2007), and Walker (2006) estimate the gains from opportunistic timing in samples of between 50 and 150 firms that have come under scrutiny. In contrast, we study the issue for the entire set of grants to CEOs at public companies.

[2]Bizjak et al. (2009) and Collins, Gong, and Li (2009) find a correlation between timing and lack of a majority of independent directors on the board. Unlike the current paper, however, these studies do not investigate how the association between board independence and timing depended on independent directors receiving lucky grants, they do not identify the association we find between opportunistic timing and CEO tenure as well as that between opportunistic timing and

These findings complement existing research concerning the link between opportunistic timing of CEO grants and certain aspects of governance such as board interlocks (Bizjak, Lemmon, and Whitby (2009)), the quality of the firm's auditor (Heron and Lie (2009)), and the composition of the compensation committee (Yermack (1997)). Our findings also complement and reinforce research showing that director independence is associated with improved compensation and disclosure (e.g., Chhaochharia and Grinstein (2009) and Beasley (2000)), that CEO tenure is correlated with increased CEO influence on compensation decisions (e.g., Core, Holthausen, and Larcker (1999) and Harford and Li (2007)), and that outside blockholders improve compensation arrangements (Bertrand and Mullainathan (2000, 2001)).

Finally, with prior work focusing on cross-sectional differences among firms, we contribute by providing a time-series fixed-effect panel data analysis of opportunistic timing, controlling for unobservable firm and CEO characteristics that could be correlated with opportunistic timing. This analysis allows us to test the hypothesis that, among the firms engaged in opportunistic timing, such timing was merely the product of routine. Inconsistent with this view, we find that for any given CEO and firm, grants to both CEOs and directors were more likely to be lucky in months in which the potential payoffs from such luck were relatively higher. Thus, the period in which opportunistic timing occurred was itself opportunistically timed. This pattern is consistent with the view that opportunistic timing reflects an economic decision that is sensitive to payoffs rather than a practice habitually followed by some firms.

Although firms did not commonly engage in opportunistic timing on all possible occasions, we do find evidence of significant persistence. The odds of a CEO's grant being lucky were significantly higher, controlling for CEO and firm characteristics in our data set, when a preceding grant to the CEO was lucky as well. These results indicate that, beyond the characteristics we identify as associated with opportunistic timing, there are additional unobservable traits of firms and CEOs that led to a higher tendency for opportunistic timing.

The remainder of this paper is organized as follows. Section I describes our data and provides summary statistics. Section II analyzes the relation between CEO luck and the luck of independent directors. Section III studies the relation between gains from lucky grants and reported compensation from other sources. Section IV investigates the relation between option timing and governance arrangements, the level of CEO influence, and payoffs from getting a lucky grant. Section V concludes.

I. Data and Summary Statistics

A. Data Sources

We construct a data set of option grants awarded to CEOs and independent directors between 1996 and 2005 using Thomson Financial's Insider Trading

the composition of the compensation committee, and they do not study the association between governance and the timing of director grants.

database, which includes all insiders' filings of equity transactions in Forms 3, 4, 5, and 144. In the course of constructing this data set, we use procedures similar to those used by Heron and Lie (2007, 2009) and Narayanan and Seyhun (2008). Our data set includes observations with a cleanse indicator of R ("data verified through the cleansing process"), H ("cleansed with a very high level of confidence"), or C ("a record added to nonderivative table or derivative table in order to correspond with a record on the opposing table"). We combine any duplicate grants that are awarded on a given date to a given individual in a given company. The price data come from the CRSP database, and we require stock returns to be available for the entire month of the grant date.

From this sample we eliminate grants that are scheduled, as they might be less likely to have been opportunistically timed. A grant is defined as scheduled if an additional grant was awarded on the same date plus/minus 1 day in the preceding year (Heron and Lie (2007)). We further eliminate grants that were given in months where the firm's stock went ex-dividend; to the extent that firms schedule grants after an ex-dividend date, the grant price might fall below the stock prices preceding the ex-date even in the absence of any backdating or spring-loading. In addition, because some firms schedule grants to directors on the date of the annual shareholder meeting, we use annual meeting dates from the Investor Responsibility Research Center (IRRC) database (available for about 25% of the sample firms) and eliminate all director grants falling within +/− 1 day of the annual meeting.

Finally, we check whether the strike price of the grant is "close enough" to the closing price of the grant date, or to the closing price 1 day before or after the grant, where a "close enough" price is defined as a price that is within 1% of the strike price. The date with the nearest closing price to the strike price is then defined as the effective grant date.[3]

In our analysis, we focus on two important groups of individuals that receive option grants. The first group includes the CEO. Following Heron and Lie (2007), we define an individual as a CEO if he or she is identified in the Thomson database either as a CEO or the president of the company (role code CEO or P). The second group comprises independent directors, who play a key oversight role in current corporate governance. An individual is considered an independent director if he or she is defined as a director in the Thomson database (role code D) and is not defined as having any other role in the company.[4]

We define our unit of observation as a *grant event*. In the CEO sample, a grant event is defined as a day in which the CEO receives one or more option grants. In the director sample, a grant event is defined as a day in which one or more directors receive one or more option grants.

[3]Consistent with Heron and Lie (2007), we also find a large fraction of grants whose strike price does not coincide with the grant-date price. Heron and Lie discuss the possible reasons for deviation of the grant-date price from the strike price.

[4]For the set of companies for which we also have information from IRRC, the data set of directors that we construct is practically identical to the set that would obtain using the independent classification provided by the IRRC database. In particular, more than 99% of the directors we classify as independent directors using the above algorithm are also classified as independent by the IRRC.

Our CEO grant events sample contains 19,036 CEO grant events in 5,819 firms. In our CEO sample, 4,510 CEOs have one grant event, 1,874 have two, 1,050 have three grant events, and 1,386 have four or more grant events. Our director grant events sample contains 25,888 grant events in 6,441 different firms. The average number of directors getting a grant in a grant event is 3.07.

B. Lucky Grant Events

The literature on the opportunistic timing of option grants (starting with Yermack (1997)) and the more recent literature on backdating (Lie (2005), Heron and Lie (2007, 2009), and Narayanan and Seyhun (2006, 2008)) has focused on the existence of negative pregrant stock returns and/or positive postgrant stock returns as the basis for detecting and investigating abnormal grant date patterns.[5] In contrast, our strategy is to examine at-the-money grants on days in which the stock prices were at the bottom of the price distribution.[6]

In particular, in this paper we use the grant month as the examined "look-back" period-–that is, we focus on grants that were given at the lowest price of the month. We call these grants "lucky" grants.[7] We compare the incidence of lucky grants relative the benchmark case in which the grant date is chosen without regard to the price distribution.[8]

While our choice of period allows us to focus on manipulation instances that were likely of greatest economic significance for CEOs and shareholders, our analysis does not fully capture instances of opportunistic timing based on short look-back periods. Narayanan and Seyhun (2008) demonstrate that, especially during the post-SOX period, there have likely been numerous instances in which grants were misdated by a few days, often by just 1 or 2 days. Thus, our

[5]The tendency of grant dates to rank low rather than high in the distribution of prices is noted by Heron and Lie (2007) and Narayanan and Seyhun (2008), but these studies include pre- and postgrant returns, not price ranks, as the main tool of analysis.

[6]Bebchuk, Grinstein, and Peyer (2006a) discuss in detail the potential advantages and disadvantages of focusing on price ranks compared with pre- and postgrant returns.

[7]Bebchuk, Grinstein, and Peyer (2006a, 2006b) extend the analysis in this paper by investigating the entire rank distribution of grants during the month, the calendar quarter, and the calendar year.

[8]Although we refer to the benchmark as one of "random selection" of grant event dates, this is not meant to involve a strictly random assignment but rather one in which grant dates are selected on the basis of factors that are independent of price-rank considerations. It might be suggested that, to the extent that (i) there are some considerations that lead firms to concentrate awards early in the month and (ii) stock prices trend upward over time, the benchmark probability should be adjusted upward. However, the actual distribution of option grant event dates is symmetric around the middle of the month. Grant events occurred on average on day 15.94 of the month in the CEO sample, and on day 15.96 of the month in the director sample, and roughly the same number of grant events occurred before and after the median trading day of the month in both samples. The upward trend of stock prices is, on average, slow relative to the volatility, so prices at the beginning and end of a month do not significantly differ in their odds of being the lowest price of the month. To be cautious, however, we conduct robustness checks that verify that our results hold when controlling for the location of the grant date within the calendar month (see footnote 21 for further details).

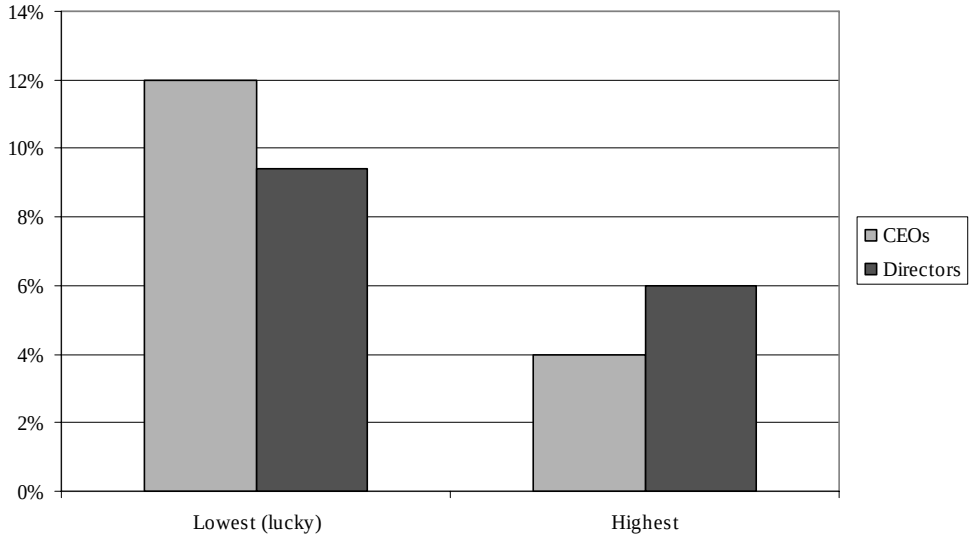

Figure 1. Frequency of Grants at Lowest and Highest Stock Price of the Month.

analysis investigates an important subset of opportunistic timing practices, but not all of them.

The figure above shows the percentage of grant events in our sample that were at the lowest price of the month and at the highest price of the month. About 12% of the CEO grant events were reported to be given at the lowest price of the month, whereas only 4% of the grant events were reported to be given at the highest price of the month. Similarly, about 9.5% of director grant events were given at the lowest price of the month compared to 6% at the highest price of the month.[9] Thus, there is a clear asymmetry between the incidence of grant event dates at the lowest and highest prices of the month.[10]

To get an estimate of the number of grant events that were opportunistically timed in both samples, we compare the actual number of lucky grant events to

[9]Note that, on average, our sample firms have less than 20 trading days each month where the prices are different in all days. The number of days during the month in which there is actual trading is less than 20 in many cases, and in many cases the highest (or lowest) price of the month obtains on 2 or more trading days. Thus, under random assignment, the expected fraction of grants on the highest price day of the month is not simply 5% but, on average, higher.

[10]This asymmetry exists not only between the incidence of grant events at the lowest and the highest price of the month but also between other price levels at the bottom and top of the price distribution. Overall, we observe a clear monotonic relation between the rank of the price in a month and the percentage of grants given at that rank. To illustrate, in the CEO grant events sample, the frequency of grant events is the highest at the lowest price of the month (12%), second highest at the second lowest price of the month (9%), and third highest at the third lowest price level (8%). Conversely, the frequency of grant events is lowest at the highest price level (4%), second lowest at the second highest level (5%), and so forth. See Bebchuk et al. (2006a, 2006b) for a full set of descriptive statistics. These papers also offer a regression analysis identifying the extent to which days with the lowest price of the month are more likely be chosen as grant dates.

the expected number of grant events that would have been lucky if grant events were allocated randomly during the month. For every month, we calculate the expected number of grant events that would have been lucky if grant events were randomly assigned over the trading days during the month.[11] This estimation is done by calculating for each individual grant event, assuming random assignment, the probability of being granted at the lowest price of the month, and then aggregating these probabilities across all grant events. Due to the large number of grant events involved, a random assignment is highly unlikely to deviate significantly from the expected number we calculate. We conduct this analysis both for the sample of director grant events and for the sample of CEO grant events.

Table I shows our estimation results. We estimate that over the full sample period of 1996 to 2005, 1,163 lucky CEO grant events and 804 lucky director grant events (about 50% and 33% of all lucky grant events, respectively) were due to opportunistic timing.[12]

The percentage of CEO lucky grant events that were lucky due to opportunistic timing was about 55% before SOX and 35% afterward. The percentage of director grant events that were lucky due to opportunistic timing was about 36% before SOX and 25% after SOX. Since a large fraction of lucky grant events owes its status to opportunistic timing, lucky grant events can provide a useful basis for studying the factors likely to be associated with such timing.

Table I also gives us a sense of the magnitude of the discount in exercise price that opportunistic timing could produce. For lucky director grant events (lucky CEO grant events), the grant price was 11% (12%) lower, on average, than the median price of the month.

Table II provides our estimates of the number of firms associated with opportunistic timing of CEO and director grant events. Our estimation methodology includes calculating the difference between the actual and expected number of grant events given on the lowest price day of the month.[13]

[11]The scenario of random assignment also assumes that, after the day is randomly selected, the distribution of prices among the month's different days is not affected by the actions that insiders are expected to take. The probability of a day being the lowest price day is computed using the ratio of the number of days in the grant month that have the lowest price to the total number of trading days in that firm's stock during the grant month.

[12]Our estimate for opportunistically timed grant events at the lowest price of the month is more conservative than the figure estimated by Heron and Lie (2009) for the total number of opportunistically timed grants. As we discuss above, we do not attempt to capture "small-scale" backdating in which grants were misdated within a short period of time. In contrast, the Heron-Lie methodology, which is based on the comparison of pre- and postgrant returns, attempts to capture such instances of manipulation as well. See also Bebchuk et al. (2006a, 2006b), who estimate deviation from random assignment using rank distribution over longer periods.

[13]As before, we base the calculation of the expected number of lucky grant events on the chance that a particular grant event occurs on the lowest price day of the month (i.e., number of lowest price days per month divided by number of trading days per month). For firms that have two grant events, the expected number is based on the chance that at least one of the two grant events is given on the lowest price day of the month; similar logic applies for more grants events and for the analysis of firms with multiple grant events.

Table I

Estimating the Incidence of Opportunistic Timing

The table shows the actual number of grant events that fell on the lowest day of the month in the director grant sample and the CEO grant sample. It also shows the number of grant events expected to fall on the lowest day of the month if the grant date was randomly selected. We estimate the probability of observing a grant event on the lowest price of the month by counting the number of days in the month where the price is the lowest and dividing it by the total number of trading days of the stock in that month. The table compares the estimate to the actual number of grant events that were the lowest. We also show the average ratio of the exercise price to the median stock price in the month. Grant events before the Sarbanes-Oxley Act (SOX) are ones whose grant event date was before September 1, 2002, and grants after SOX are ones whose grant event date was on or after September 1, 2002. The sample consists of 26,209 option grant events to directors and 19,036 grant events to CEOs between 1996 and 2005.

	Incidences of Lucky Grant Events	
	CEO Grant Events	Director Grant Events
Overall		
Actual number of grant events	2,329	2,473
Actual/total	12.2%	9.4%
Expected number of grant events	1,166	1,669
Actual − expected	1,163	804
(Actual − expected)/actual	49.9%	32.5%
(Actual − expected)/total	6.1%	2.8%
Exercise price/median stock price	0.88	0.89
Observations	19,036	26,209
Before SOX		
Actual number of grant events	1,741	1,707
Actual/total	14.5%	10.9%
Expected number of grant events	785	1,098
Actual − expected	956	609
(Actual − expected)/actual	54.9%	35.7%
(Actual − expected)/total	8.0%	3.5%
Exercise price/median stock price	0.87	0.88
Observations	11,998	15,709
After SOX		
Actual number of grant events	588	766
Actual/total	8.4%	7.3%
Expected number of grant events	381	571
Actual − expected	207	195
(Actual − expected)/actual	35.3%	25.4%
(Actual − expected)/total	2.9%	1.7%
Exercise price/median stock price	0.91	0.91
Observations	7,038	10,500

Panel A indicates that the number of firms with one or more lucky CEO grant event exceeds the estimated number of such firms under random assignment by 722. This figure implies that about 12% of all firms in our sample had lucky CEO grant events due to opportunistic timing.

Panel B indicates that the number of firms with one or more lucky director grant event exceeds the estimated number of such firms under random

Table II
Estimating the Incidence of Firms Associated with Opportunistic Timing

The table shows the actual number of firms that had at least one grant event that fell on the lowest day of the month in the director grant sample and the CEO grant sample (lucky grant). It also shows the number of firms expected to have at least one lucky grant event falling on the lowest day of the month if the grant date was randomly selected. We estimate the probability of observing a grant event on the lowest price of the month by counting the number of days in the month where the price is the lowest and dividing it by the total number of trading days of the stock in that month. The table compares the estimate to the actual number of grant events that were the lowest. The sample consists of 26,209 option grant events to directors and 19,036 grant events to CEOs between 1996 and 2005 after excluding events that were given on the annual meeting date (+/−1 day).

No. of Grants	Firms	Actual No. of Firms at Lowest	Expected No. of Firms at Lowest	Actual − Expected	(Actual − Expected)/ Actual	(Actual − Expected)/ Total
Panel A: CEO Grant Events: Distribution by Firm						
1	1,880	296	138	158	53.4%	8.4%
2	1,106	254	149	105	41.3%	9.5%
3	860	262	152	110	42.0%	12.8%
4	569	212	125	87	41.0%	15.3%
5>	1,404	729	467	262	35.9%	18.7%
All	5,819	1,753	1,031	722	41.2%	12.4%
Panel B: Director Grant Events: Distribution by Firm						
1	1,597	195	133	62	32.0%	3.9%
2	1,024	204	139	65	31.9%	6.3%
3	761	215	148	67	31.3%	8.8%
4	550	188	134	54	28.6%	9.8%
5>	2,119	1,009	842	167	16.6%	7.9%
All	6,051	1,811	1,395	416	22.9%	6.9%

assignment by 416. This figure implies that lucky director grant events that were due to opportunistic timing took place in about 7% of all firms in our sample.[14]

For each of the 12 Fama–French industries, we produce an estimate of the incidence of lucky grants due to opportunistic timing. This analysis shows[15] that there was a significant incidence of timing of CEO grant events in each of the 12 Fama–French industries, and that there was a significant incidence of timing of director grant events in each of the 12 industries other than utilities.

[14]The opportunistic timing that we estimate above might be due not only to backdating but also to spring-loading, based on the use of private information. Bebchuk et al. (2006a, 2006b) show, however, that at least some of the identified instances of opportunistic timing are due to backdating rather than spring-loading. Similar findings have been obtained by Heron and Lie (2007) and Narayanan and Seyhun (2006).

[15]For the full details of this industry-level analysis, see Bebchuk et al. (2006a, 2006b).

Finally, to the extent that board meetings in which option grants are determined are also the ones that precede earnings announcements, a higher-than-expected incidence of lucky grants might be due to a positive stock return drift following positive earnings surprises. We therefore examine whether our results are driven by grants that were given in months in which quarterly earnings were announced. We reestimate the numbers in Table I excluding all grant events taking place in months with a quarterly earnings announcement. We find that excluding these events does not change significantly any of our results in Table I.[16] We repeat this robustness check throughout, and all the results displayed in this paper are robust to the removal of grant events awarded during months with quarterly earning announcements (see the Internet Appendix[17]).

II. CEO Luck and the Luck of Independent Directors

In examining the opportunistic timing of CEOs' grant events, one natural question to ask is what role, if any, independent directors played. To the extent that opportunistic timing is caused by agency problems, one may wonder why directors failed to prevent it. One possible explanation is that directors did not know about opportunistic timing. Another possible explanation is that directors had incentives to allow such practices to continue, or at least not to learn about them. In his opening statement at the Senate Finance Committee hearing on backdating, then-Chairman Grassley expressed concerns that "boards of directors were either asleep at the switch, or in some cases, willing accomplices themselves."[18]

In this section, we explore the question of directors' incentives. We show that grant dates were selected in ways that made independent directors beneficiaries of opportunistic timing practices. We also show that the timing of director grants was not merely a byproduct of directors happening to receive grants on the same date as executive awards or of firms routinely timing grants to all recipients. Rather, corporate decision-makers chose to also provide lucky grants to independent directors and not only executives. Finally, our analysis in this and subsequent sections shows that directors' luck was associated with improved outcomes for the CEO, both in terms of increased odds of receiving lucky grants and in terms of receiving higher compensation from other sources.

[16]Excluding grant events in months where the firm makes a quarterly earnings announcement reduces the number of CEO grants from 19,036 to 11,997, and the number of lucky grant events from 2,329 to 1,535. However, the fraction of lucky grant events (and the fraction of unexpected lucky grants) does not change significantly and goes from 12.2% to 12.8% (6.1% to 6.5%). Similarly, for director grant events, the total number of grant events changes from 26,209 to 16,634, and the number of lucky grants from 2,473 to 1,628. The fraction of lucky grant events (and the fraction of unexpected lucky grants) changes from 9.4% to 9.8% (2.8% to 3.4%).

[17]The Internet Appendix is available at http://www.afajof.org/supplements.asp.

[18]Opening Statement of Sen. Chuck Grassley, Chairman, Finance Committee Hearing, "Executive Compensation: Backdating to the Future", September 6, 2006, available at http://www.senate.gov/~finance/.

A. CEO Luck and Simultaneous Awards to Outside Directors

The fact that some director grant events were opportunistically timed does not indicate that those making the timing decisions sought to make independent directors the beneficiaries of opportunistic timing. Some director grant events could have coincided, for various reasons, with grants awarded to executives. In fact, in our sample, 29% of all director grant events coincided with awards to one or more executives.[19] Given that some director grant events coincided with executive grant events, it might be possible that decision-makers intending to opportunistically time the options awarded to executives would have produced opportunistic timing of director grants, even without having any desire to produce the latter outcome.

If the opportunistic timing of director grants was a mere byproduct of the timing of executive grants, the likelihood of a CEO grant event being lucky would not be expected to be correlated with whether independent directors received an option grant on the same day. To test this hypothesis, we run three regressions—a pooled regression, a regression using firm fixed effects, and a regression using CEO fixed effects—on our sample of CEO grant events and display the results in Table IV. In all regressions, the dependent variable is a dummy variable indicating whether a CEO grant event was lucky. The independent variable of interest is a dummy variable indicating whether a director's grant event coincided with the CEO grant event.

We include several control variables in the regressions (see Table III for definitions). The first is firm size, as prior work shows that opportunistic timing was more likely to occur in smaller firms (Heron and Lie (2009)). Our variable for size is the natural log of relative market capitalization, defined as the ratio of the market capitalization of the firm at the grant date divided by the median market capitalization of all the firms in our sample for that year.[20] SOX imposed stricter reporting requirements, making backdating more difficult (Narayanan and Seyhun (2006) and Heron and Lie (2007)), so our second control variable is a dummy variable equal to one if the grant was given post-SOX. In the pooled regression, we also include a new economy dummy to control for the possibility that opportunistic timing was more prevalent among new economy (hi-tech) firms (Heron and Lie (2009)). Our definition of the new economy follows Murphy (2003), who defined new economy firms as firms that belong to the following four-digit SIC codes: 3570, 3571, 3572, 3576, 3577, 3661, 3674, 4812, 4813, 5045, 5961, 7370, 7371, 7372, and 7373.

Finally, even under random selection of dates, a grant event would be more likely to be lucky when more trading dates in the month had a price equal to the lowest price level of the month. Also, when there was only 1 day with this

[19]Non-CEO executives' grant events are identified from Thompson using the same sample selection mechanism as for CEOs but requiring an executive title as the role code.

[20]We choose this benchmark, rather than a benchmark based on the distribution of all firms in Compustat, to ensure an even size distribution across firms in the sample. Our results remain essentially the same when we divide market capitalization by the median market capitalization of the firms in Compustat in that year.

Table III
Variable Definitions

Variable	Definition
Lucky grant	Dummy variable equal to one if the grant was given on the date where the lowest price of the month prevailed and zero otherwise
Simultaneous grant to directors	Dummy variable equal to one if a director grant occurred on the same day as a grant to the CEO and zero otherwise
Lucky CEO current or prior year	Dummy variable equal to one if the CEO received a lucky grant in the current or prior year and zero otherwise
Lucky CEO current year	Dummy variable equal to one if at least one grant event to the CEO during the fiscal year was on the lowest day of the month
Lucky director current year	Dummy variable equal to one if at least one grant event to the directors during the fiscal year was on the lowest day of the month
Relative gain from luck (CEO)	Ratio of the implied underreported option value to total compensation, where the implied underreporting is the ratio of the benchmark to grant value minus one, times the Black-Scholes value of the options reported by ExecuComp. The benchmark value is computed as the Black-Scholes value of an option with the strike price of the grant, but where the grant date price is the median price of the month. All other parameters of the option grant are held constant. The standard deviation of the daily stock returns is calculated over the year prior to the fiscal year in which the grant was given. For CEOs with multiple lucky grants per fiscal year the implied underreporting is the average relative gain from luck across all grants.
Previous grant event lucky	Dummy variable equal to one if the previous grant event was at the lowest price of the month and zero otherwise. If there is no previous grant event, then the dummy variable is equal to zero
Previous grant event not lucky	Dummy variable equal to one if the previous grant event was at any price other than the lowest price of the month and zero otherwise. If there is no previous grant event, then the dummy variable is equal to zero
Log book value	Natural log of the book value of the assets at the end of the fiscal year
Return on assets (ROA)	Operating income divided by book value of assets
Industry-adjusted Tobin's Q	Book value of liabilities plus the market value of equity all divided by the book value of assets, where the industry adjustment is made at the two-digit SIC level
Leverage	Ratio of the book value of long-term debt divided by the book value of assets
Stock return t	Cumulative stock return in the year of the grant (t)
Stock return t-1	Cumulative stock return in the year of the grant ($t - 1$)
Relative size	Natural log of the ratio between the market cap of the firm at the end of the year and the median market cap of the firms in the sample for that year
New economy	Dummy variable equal to one for firms with SIC codes as defined in Murphy (2003)
SOX	Dummy variable equal to one for grants after September 1, 2002 and zero otherwise
Days in month lowest	Fraction of trading days per month with lowest price

(*continued*)

Table III—*Continued*

Variable	Definition
ln(total compensation)	Natural log of the variable tdc1 from ExecuComp
Difference between the median and lowest price	Natural log of one plus the return to shareholders from the lowest price of the month in which the options were granted to the median price of that month
Market component of the median price—lowest price difference	Natural log of one plus market return from the minimum price day to the median price day
Firm-specific component of the median price—lowest price difference	Total return minus the market return from the minimum price day to the median price day
CEO outsider dummy	Dummy variable equal to one if the CEO was not employed in the firm before becoming the CEO, and zero otherwise
Independent compensation committee dummy	Dummy variable equal to one if the compensation committee consisted only of independent directors and zero otherwise
Independent board dummy	Dummy variable equal to one if the board had a majority of independent directors and zero otherwise
Tenure	Natural log of one plus the number of years that the CEO served in the company
5% blockholder on compensation committee dummy	Dummy variable equal to one if there was at least one director who held 5% or more of the shares in the company and zero otherwise

price level, the probability that it would be selected is lower when the month had more trading days. Therefore, we add a fourth control variable equal to the ratio of the number of days in the month of the grant event with closing prices equal to the lowest price of the month to the number of trading days in the firm's stock in the grant month.[21]

Table IV presents the results. The results indicate that the likelihood that a CEO grant event was lucky was higher (significant at the 5% level or better) when the CEO grant event was on the same day as the director's grant event. For example, in the CEO fixed effects regression, the odds of a CEO grant being lucky increased by $\exp(0.301) = 1.35$ (or 35%) when the CEO grant event coincided with a grant event to independent directors.

[21]In the Internet Appendix, we also add, here and in all subsequent regressions with the dependent variable being whether a grant event was lucky, additional controls to verify that our results are robust to the possibility of an upward drift in stock prices during the grant month (see footnote 8). In one type of regression, we add dummies for the location of the grant day in the sequence of the calendar days of the month (first day of the month, second day of the month, etc.). In a second type of regression, we add dummies for the location of the day in the sequence of trading days (first trading day of the month, second trading day of the month, etc.). Adding these controls does not change any of the results reported in this paper.

Table IV
CEO Luck and Simultaneous Awards to Directors

The table shows logit regression results for the sample of CEO grant events. Due to data availability, the sample is reduced to 18,543 observations. The dependent variable is a dummy variable for whether the grant was given on the date where the lowest price of the month prevailed and zero otherwise. The independent variables are defined in Table III. The numbers in parentheses are the estimated standard errors of the coefficients, adjusted for clustering at the executive level. ** and *** indicate significance at the 5% and 1% level, respectively.

	Whole Sample	Firm Fixed Effect	CEO Fixed Effect
	Lucky CEO Grant Dummy		
Dependent Variable	(1)	(2)	(3)
Simultaneous grants to directors	0.188***	0.231**	0.301***
	(0.061)	(0.091)	(0.104)
Relative size	−0.066***	0.156***	0.165***
	(0.012)	(0.046)	(0.053)
New economy	0.267***		
	(0.062)		
SOX	−0.563***	−0.552***	−0.572***
	(0.052)	(0.071)	(0.084)
Days in month lowest	5.484***	5.907***	6.446***
	(0.404)	(0.715)	(0.885)
Constant	−2.222***		
	(0.042)		
Observations	18,543	18,543	18,543

One possible explanation for this finding is that, when selecting which CEO grants to opportunistically time, decision-makers preferred to time CEO grants that coincided with awards to independent directors. An alternative explanation is that, when selecting when to provide grants simultaneously to the CEO and independent directors, decision-makers chose to do so when grants were opportunistically timed. Under either explanation, choices were made with an aim to benefit independent directors in connection with the provision of benefits to the CEO. Thus, our results do not support the hypothesis that decision-makers sought to opportunistically time CEO grants while having no interest in (and being indifferent to the prospect of) providing independent directors with lucky grants.

B. Director Luck and Simultaneous Awards to CEOs

Having examined the relationship between the likelihood of a CEO grant event being lucky and the existence of a simultaneous award to directors, we also examine how the likelihood of a lucky director grant event depended on the existence of a simultaneous award to executives. We run a regression of whether a director grant event was lucky on (i) whether the CEO but not non-CEO executives received a grant on that date; (ii) whether the CEO and one or

Table V
Director Luck and Simultaneous Award to the CEO

The table shows logit regression results for the sample of director grant events. Due to data availability, the sample is reduced to 25,888 grant events. The dependent variable is a dummy equal to one if a grant event is at the lowest price of the month. "CEO but not other execs get grant" is a dummy equal to one if the CEO but no other executive also received a grant on the same day. "CEO and other execs get grant," and "Other execs but not CEO get grant" are defined accordingly. * and *** indicate significance at the 10% and 1% levels, respectively. Standard errors are shown in parentheses. The regression includes also firm fixed effects.

Dependent Variable	Lucky Director Grant Dummy
CEO but not other execs get grant	0.660***
	(0.215)
CEO and other execs get grant	0.650***
	(0.084)
Other execs but not CEO get grant	0.348***
	(0.079)
Relative size	0.067*
	(0.039)
New economy	0.446
	(0.302)
SOX	−0.313***
	(0.064)
Days in month lowest	7.561***
	(0.547)
Observations	25,888

more non-CEO executives received a grant on that date; and (iii) whether one or more non-CEO executives, but not the CEO, received a grant on that date. The regression includes our standard controls and firm fixed effects, and we present the results in Table V.

The coefficients on all three dummy variables are positive and significant at the 1% level, indicating that the odds that a director grant event was lucky increased when an executive also received a grant on the same day. A *t*-test shows that directors who received grants on the same day as the CEO (whether or not a non-CEO executive also received options) improved the odds of being lucky by more than if directors received grants together with one or more non-CEO executive. Thus, the results are again consistent with the possibility that the opportunistic timing of director grants was the product of choices that tied the interests of independent directors with those of executives in general and the CEO in particular.

C. Director Grant Events Not Coinciding with Executive Awards

Our findings thus far raise the question of whether the higher-than-normal incidence of director grant events that were lucky was fully driven by events coinciding with executive awards. To explore this question, we run a regression similar to those displayed in Table V but restrict the sample to grant events

Table VI
Director Luck not Simultaneous with Executives

The sample consists of 18,376 grant events where outside directors received option grants and no executive received a grant on the same day. The regressions are logit regressions where the standard errors are clustered by company and reported underneath the coefficients. The dependent variable is a dummy equal to one on the day in the calendar month of the grant event and zero otherwise. The independent variables are dummy variables equal to one if the price on a given day is the lowest (second lowest, third lowest price) of the month. All regressions include additional price ranks (see the Internet Appendix for the full specification). Regression 1 includes all grant events, regression 2 only those pre-SOX, and regression 3 only those post-SOX. ** and *** indicate significance at the 5% and 1% levels, respectively.

	Grant Date Dummy		
	(1)	(2)	(3)
Dependent Variable	All	Pre-SOX	Post-SOX
Lucky	0.450***	0.513***	0.329***
	(0.027)	(0.033)	(0.044)
Second lowest	0.201***	0.221***	0.168***
	(0.027)	(0.033)	(0.047)
Third lowest	0.122***	0.130***	0.115**
	(0.026)	(0.032)	(0.048)
Constant	−3.034***	−3.045***	−3.019***
	(0.004)	(0.006)	(0.006)
Observations	367,620	212,654	154,966

not coinciding with awards to executives. Specifically, we regress whether a day was selected for a director grant event on whether the day had the lowest price of the month.

The results displayed in Table VI indicate the existence of opportunistic timing even in the universe of director grant events not coinciding with executive awards. This is the case not only for the 1996 to 2005 period as a whole, but also for the subperiods separated by the adoption of SOX. As expected, days at the bottom of the price distribution were more likely to be chosen for director grant events before SOX than after SOX. Overall, Table VI shows that the incidence of luck among director grant events not coinciding with executive awards was significantly higher than random.

Focusing on the set of director grant events not coinciding with executive awards, we examine in Table VII whether the opportunistic timing identified within this set involved any choices linking director luck and CEO luck. In particular, we are interested in whether a director grant event not coinciding with executive awards was more likely to be lucky if the CEO had a lucky grant event on a different occasion during the current or the prior year.

In the regressions of Table VII, Panel A, the dependent variable is a dummy variable for whether a given day was selected for a director grant event. The sample consists of all trading days in months that had director grant events not coinciding with CEO grant events. The variable of interest is an interaction term between a dummy indicating whether the day's stock price was at the

Table VII
Director Luck and CEO Luck

The sample consists of all trading days in months where outside directors had at least one option grant event and no other executive received a grant on the same day (a total of 18,376 grant events). In Panel A, the regressions are logit regressions where the errors are clustered by company and reported underneath the coefficients. The dependent variable is a dummy equal to one if the trading day was a grant event day and zero otherwise. The independent variables are described in Table III. Regression 1 includes all grant events, regression 2 only those pre-SOX, and regression 3 only those post-SOX. All regressions include additional price ranks from the second lowest to the fifth lowest and the five highest price ranks (see the Internet Appendix). Panel B contains a pooled panel regression where the errors are clustered by firm (regression 1) and a firm fixed effect regression (regression 2). The dependent variable is a dummy equal to one if the grant event was lucky and zero otherwise. *** indicates significance at the 1% level.

Panel A: Dependent Variable Is Grant Date Dummy

	(1)	(2)	(3)
Sample	All	Pre-SOX	Post-SOX
Lucky Director	0.365***	0.417***	0.262***
	(0.028)	(0.034)	(0.047)
Lucky Director ×	0.525***	0.571***	0.438***
Lucky CEO current or prior year	(0.081)	(0.100)	(0.137)
Lucky CEO current or prior year	−0.057***	−0.071***	−0.036***
	(0.010)	(0.014)	(0.013)
Constant	−3.003***	−3.006***	−2.998***
	(0.003)	(0.004)	(0.004)
Observations	367,620	212,654	154,966

Panel B: Dependent Variable Is Lucky Director Grant Dummy

	(1)	(2)
Regression	Pooled panel	Firm fixed effects
Lucky CEO current or prior year	0.502***	0.500***
	(0.075)	(0.111)
Relative size	−0.042***	0.025
	(0.014)	(0.043)
New economy	0.013	
	(0.068)	
SOX	−0.205***	−0.252***
	(0.052)	(0.072)
Days in month lowest	6.937***	8.221***
	(0.404)	(0.641)
Constant	−1.610***	
	(0.235)	
Observations	18,376	18,376

lowest level of the month and a dummy variable equal to one if the CEO had a lucky grant event in the year of the grant event or the preceding year. We run three regressions—one for the whole period, one for the pre-SOX period, and one for the post-SOX period. In all of the regressions, the coefficient on the interaction term is positive and significant at the 1% level. These results

indicate that throughout the period, as well as during the two subperiods, a director grant event not coinciding with executive awards was more likely to be lucky if the CEO received a lucky grant on a different occasion during the current or the prior year.

In Panel B of Table VII, the sample consists of all director grant events not coinciding with CEO grant events and the dependent variable is a dummy equal to one if a given director grant event that did not coincide with executive awards was lucky. The independent variables are whether the CEO received a lucky grant during the current or prior year, which is our variable of interest, and standard controls. Column 1 reports the results of a pooled regression, while column 2 reports the results of a firm fixed effects regression focusing on within-firm variation over time between periods in which the CEO was and was not lucky. In both columns, the coefficient on the dummy indicating whether the CEO had a lucky grant event during the current or prior year is positive and significant at the 1% level. Economically, the coefficient in regression 1 indicates that the odds of a director grant event being lucky increased by $1.65 = \exp(0.502)$ or 65% if the CEO also had a lucky grant event in the current or prior year.

D. Is Director Luck Due to Routine Timing?

Finally, we explore whether the higher-than-normal incidence of director luck could have been a mere byproduct of firms "routinely" timing all grants to everyone. We find that our results concerning director luck were not due to such routine timing.

To begin, we observe that the incidence of firms that provided lucky grants to all recipients was very low. Firms that commonly awarded lucky grants did not uniformly provide such grants to all recipients, and also provided grants that were not lucky to some recipients.[22] In particular, among the firms with three or more grant events during the period of our study, only 1.2% had grant events that were always lucky (80 firms); among the firms with three or more grant events during the pre-SOX period, only 1.7% provided lucky grant events to everyone during this period (94 firms). On a year-by-year basis, among firm-year observations with three or more grant events during a given year, only 4.9% had grants that were all lucky in a given year (292 firm-year observations). Furthermore, the incidence of uniform luck is only 1% among the firms with four or more grant events during the period of our study, 1.3% among the firms with four or more grant events during the pre-SOX period, and 3.7% among the firm-year observations of firms with four or more grant events during a given year.

More importantly, if we remove all the observations from the data set of director grant events that could have been lucky due to a routine timing practice,

[22]We start with the total sample of option grants (248,084) to everyone where we have the necessary information on stock prices. We restrict our sample to those firms that provided at least one grant to a director during our sample period.

all of our results from the full sample hold. In particular, we perform three removal strategies. First, we remove all the lucky director grant events of firms with two or more grant events that provided lucky grants to everyone during the sample period or at least during the pre-SOX period. Next, to allow for the possibility that a routine luck practice was introduced just before a lucky director grant event, we remove all lucky director grant events that were followed by grant event(s) that were all lucky during the sample period or at least until the adoption of SOX. Third, to allow for the possibility that a firm had a routine luck practice just in a given year, we remove all the lucky director grant events of firms that had two or more grant events in that year and whose grant events in that year were all lucky. Excluding these lucky director grant events from our data, we find that all our preceding results concerning director luck, as well as all the results presented later in this paper, continue to hold.[23]

Overall, the evidence we present in this section is consistent with the hypothesis that firms chose to provide opportunistically timed option grants to directors. The subsequent sections examine ways in which firms making such choices differed from others. Among other things, we shall see that CEO compensation (relative to peer companies) was higher, and the likelihood of lucky CEO grants associated with a majority of independent directors on the board was lower, in firms providing lucky grants to directors.

III. Total Reported CEO Compensation and Lucky Grants

In this section, we investigate the relation between the CEO's total reported compensation and luck. In particular, we test the hypothesis that firms used gains from lucky grants to the CEO, which were not reflected in publicly reported compensation figures, as a "substitute" for forms of CEO compensation that had to be publicly reported. We do not find support for this hypothesis but, rather, find a positive correlation between CEO reported compensation and lucky CEO grants. We also investigate the relation between total reported CEO compensation and director luck and find evidence that lucky grants to independent directors were associated with higher total CEO compensation.

We begin by estimating the magnitude of gains to CEOs from opportunistic timing of option grants. Although we do not know for certain which lucky grants were produced by backdating, we identify a pool of grants—those awarded at the lowest price of the month—in which a large fraction was likely produced by opportunistic timing. Therefore, it is worth estimating the potential gain that a CEO would have derived from having a grant placed in this pool via opportunistic timing, assuming that the grant was indeed so placed.[24]

[23]We also confirmed in a similar way that all of our results concerning CEO luck in this paper are robust to implementing each of the three strategies for removing lucky CEO grant events that could be due to routine timing by the firm.

[24]For the full analysis, see Bebchuk, Grinstein, and Peyer (2006a).

To this end, we first calculate the value of each grant in the considered pool, assuming that it was granted on the date reported using the parameters given in the Thomson database for the grant date, maturity date, strike price, and number of options granted.[25] Assuming the grant was backdated, we then compute the average ratios of three benchmark estimates of the grant's actual value under truthful reporting. One comparison benchmark is the value the option had, assuming that it was granted not on the reported date but on a date in the grant month in which the price was equal to the month's median price. The second comparison benchmark is the expected value of the grant, assuming it was granted not on the reported date but on a randomly selected day during the grant month (that is, assuming it was given on any of these days with the same probability).[26] The third comparison benchmark is the value that the CEO's option had at the end of the grant month.[27]

We find that the three methods above yield very similar results. Assuming lucky grants owed their status to opportunistic timing, they had a value that was, on average, 20% to 21% higher than the value of the grant in the absence of such timing.[28] The lucky grants had a value that was 20% higher than the value of a grant with the median price of the month or the expected value of a grant whose date was randomly selected among the days of the month. By the end of the grant month, lucky grants had a value that was, on average, 21% higher than their value based on the reported grant date. Our estimate of the dollar gain to the CEO ranges (depending on the method) from 1.4 to 1.7 million dollars.

We also estimate the ratio of a CEO's gain from an opportunistically timed grant in one of three prices at the bottom of the distribution to the total compensation of the CEO. Data on total compensation come from ExecuComp (the tdc1 variable), reducing the sample to those companies for which we have data from ExecuComp. To derive this estimate, we take the Black-Scholes value of the options reported by ExecuComp, and use our methods for estimating the percentage of this value that the CEO gained assuming the grant was backdated. We then estimate the average ratio of such unreported gains to total reported compensation and get estimates of 9% to 10%. Because our procedure

[25]In order to calculate Black-Scholes values, we use the 3-month T-bill as the risk-free rate. As a proxy for volatility, we use the standard deviation of daily returns in the year prior to the grant. Grants with fewer than 30 days of stock returns in the previous year are excluded.

[26]This value is computed as the average over Black-Scholes option values in the grant month, where the daily option values are based on the strike price of the actual grant but the stock price is the price of the particular day of the month. All other parameters are held constant.

[27]This value is computed using the strike price of the actual grant and the stock price at the last trading day of the month.

[28]There is an aspect of our findings that makes our estimates of the percentage of underreporting conservative. Not knowing which grants in the lucky grants pool were produced by backdating, we assume that the manipulated grants in this pool were similar in characteristics to the other (nonmanipulated) grants in the pool. However, our results below suggest that manipulation might have been more likely to occur when the difference between the lowest and median price of the month was high, which increased the percentage appreciation in grant value due to backdating to the month's lowest price.

for deriving the percentage by which manipulated grants were underreported is conservative, we believe that these estimates are conservative and likely significantly understated. Thus, our estimates, based on the full sample of granting firms, suggest that the gains from grant manipulation were an economically significant part of CEOs' regular compensation.

While we have thus far examined the profits to CEOs using the standard grant date valuation method, we also verify that opportunistic timing produced significant ex post profits to CEOs exercising opportunistically timed grants. CEOs and other insiders are required to report not only option grants but also exercises of such grants and the Thompson database includes records of option exercises. To identify events in which options awarded in a lucky grant event were subsequently exercised, we match exercises with awards using the person ID, the firm ID, the exercise price, and the grant expiration date. We then compare the profits that CEOs made from exercising lucky options with the profits that they would have made had the options been awarded not at the lowest price of the grant month but instead at the median price of that month.

We are able to identify realization events with respect to 42% of the lucky grants. It should be noted that some of the lucky grants were still outstanding at the end of our sample period (December 2005), and that these lucky grants might have produced some realization events after 2005. We find that, on average, the profits in realization events of options awarded as part of a lucky grant were higher by 13% compared with the scenario in which the grant was awarded at the median price of the grant month. These results confirm that opportunistic timing significantly increased CEOs' gains from option awards not only ex ante but also ex post.

Given that the gains to CEOs from the opportunistic timing of option grants were significant, we turn to examine the hypothesis that these gains were provided as a substitute for other forms of compensation. A finding that firms using this form of substitute compensation paid lower compensation through other sources (relative to peer companies) would be consistent with this view. Therefore, we test whether, using standard controls, total reported compensation was lower for CEOs who were the recipients of lucky grants.

Table VIII presents regression results for the subsample of CEOs for whom data are available in ExecuComp. The dependent variable is the natural logarithm of total compensation (tdc1) from ExecuComp. This variable is the sum of the salary, bonuses, other compensation, value of restricted stock, and Black-Scholes value of the option grants to the CEO. We note that the Black-Scholes value of the CEO's option grants in ExecuComp does not include the gain from manipulating the grant date. The option value is calculated assuming that the options are at-the-money, with a strike price based on the reported grant date. To the extent that the option grants were backdated, their true value exceeded the value reported by companies and included in tdc1. The excess of this true value over the reported value is the gain from luck.[29] Thus, the reported value

[29]Omitting the reported Black-Scholes value of (backdated) options from tdc1 would prevent us from accounting for the possibility that companies that provided CEOs with backdated options

Table VIII

Reported Compensation and Lucky Grants

The table shows regression results where the dependent variable is the natural log of total CEO compensation, defined as the natural log of the variable tdc1 from ExecuComp. The sample in regressions 1–4 consists of all firm-years in ExecuComp that appear also in the CEO grant database. Regressions 5 and 6 exclude firm-year observations where the CEO and the independent directors have received at least one grant on the same day during the year. The independent variables are described in Table III. We report coefficients and standard errors (in parentheses) of OLS regressions (regressions 2, 4, and 6 are firm fixed effects regressions) with year and industry dummies (at the two-digit SIC level). Errors are clustered at the firm level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	ln(Total Compensation)					
Dependent Variable	(1)	(2)	(3)	(4)	(5)	(6)
Lucky CEO current year	0.076**	0.056*			0.071*	0.056*
	(0.035)	(0.032)			(0.041)	(0.031)
Relative gain from luck (CEO)			0.009	0.019***		
			(0.009)	(0.006)		
Lucky director current year					0.110**	0.088*
					(0.049)	(0.045)
Standard deviation of returns	6.963***	2.431*	7.847***	2.361	6.426***	2.070
	(1.586)	(1.426)	(1.692)	(1.494)	(1.770)	(1.771)
Log book value	0.485***	0.534***	0.489***	0.546***	0.484***	0.533***
	(0.013)	(0.035)	(0.013)	(0.036)	(0.014)	(0.041)
ROA	0.173	0.230	0.131	0.136	0.220	0.448**
	(0.174)	(0.149)	(0.175)	(0.152)	(0.198)	(0.186)
Industry-adjusted Tobin's Q	0.099***	0.051***	0.108***	0.055***	0.109***	0.058***
	(0.011)	(0.008)	(0.012)	(0.009)	(0.014)	(0.011)
Leverage	−0.274***	−0.421***	−0.339***	−0.579***	−0.231**	−0.362**
	(0.095)	(0.113)	(0.093)	(0.123)	(0.108)	(0.143)
Stock return *t*	0.043	0.030	0.022	0.028	0.042	0.042
	(0.033)	(0.025)	(0.033)	(0.026)	(0.040)	(0.031)
Stock return *t* − *1*	0.172***	0.146***	0.169***	0.138***	0.186***	0.118***
	(0.029)	(0.023)	(0.030)	(0.023)	(0.035)	(0.028)
New economy	0.227***		0.233***		0.222***	
	(0.062)		(0.065)		(0.073)	
Tenure	0.011**	0.004	0.012**	0.004	0.012**	0.004
	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)
Tenure^2	−0.000	−0.000	−0.000*	−0.000*	−0.000	−0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CEO age <50	−0.003	0.066	0.017	0.066	−0.021	0.085
	(0.038)	(0.044)	(0.040)	(0.046)	(0.044)	(0.052)
CEO age >65	−0.237***	−0.274***	−0.179**	−0.216**	−0.222**	−0.291***
	(0.086)	(0.090)	(0.087)	(0.091)	(0.101)	(0.104)
Constant	3.470***		3.582***		3.401***	
	(0.141)		(0.143)		(0.156)	
Observations	4,325	4,325	4,325	4,325	3,179	3,179
R^2	0.55	0.21	0.54	0.21	0.55	0.21
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	No	Yes	No	Yes	No	Yes

of the grant does not include the gain from opportunistic timing and therefore, absent any link between director luck, CEO luck, and directors' incentives to benefit the CEO, should be independent of the decision to grant the CEO or the directors lucky grants.

In columns 1 and 2, the independent variable of interest is a dummy called "lucky CEO," which is equal to one if the grant was given at the lowest price of the month. In columns 3 and 4, the independent variable of interest is "relative gain from luck (CEO)," and is defined as the gain from luck in the event that the grant is lucky (which is thus zero when the grant is not lucky) divided by total reported compensation.[30]

We control for other known determinants of the level of compensation, namely: the standard deviation of the daily stock returns in the year prior to the fiscal year where the grant was given; the log of the book value of assets; the firm's return on assets; industry-adjusted Tobin's Q; the firm's leverage; the firm's stock returns in the year of compensation and (separately) the prior year; a dummy for whether the firm is a new economy firm; CEO age; industry dummies; and CEO tenure. All control variables are from ExecuComp and Compustat. Regressions 1, 3, and 5 are pooled OLS regressions. One potential concern about our panel regressions is that they might not control for some relevant but unobservable characteristics of the CEO. We therefore report firm fixed effects regressions in regressions 2, 4, and 6. We cluster the errors by CEOs to correct for potential correlations across the levels of compensation for the same CEO.[31]

The coefficients on lucky CEO in regressions 1 and 2 are positive and significant (at the 5% and 10% levels), allowing us to reject the hypothesis that firms granting options at the lowest price of the month paid lower compensation relative to peers through other, reported sources. The magnitude of the coefficient suggests that when the CEO received a lucky grant, the compensation to the CEO from other sources was higher by about 7% (since this is a log regression, giving a lucky grant to the CEO was associated with an increase of exp(0.07) in compensation, which is roughly 1.07). A similar conclusion arises from regressions 3 and 4 in which the coefficient on "relative gain from luck" is positive and in regression 4 is significant at the 1% level. Thus, the higher was a CEO's gain (if any) from receiving a lucky grant, the higher was the CEO's total compensation from other, reported sources.[32]

Note that our results in this section not only fail to find a negative correlation between luck and total reported compensation from other sources, as predicted

reduced the number of options (and thus the reported Black-Scholes value of the options) in order to offset the gain from luck produced by backdating.

[30]The results displayed in the table use our first method of estimating gains from luck, which assumes that opportunistically timed lucky grants were, in fact, given on a day with a price equal to the month's median. Using the other methods, all of the regressions in the table yield similar results to those displayed (see the Internet Appendix).

[31]We include year dummies to account for unobservable time trends (beyond the SOX effect).

[32]In further exploration of the substitution hypothesis, we also tested the hypothesis that lucky grants were provided as a tax-efficient substitute for nonperformance compensation whose deductibility was limited by section 162(m) of the tax code to $1 million. Under this hypothesis, firms reaching the 162(m) limitation of the $1 million nonperformance-based compensation would

by the substitution hypothesis, but they identify a positive correlation. One possible explanation for this positive correlation is that CEOs' influence over the pay-setting process, or some other governance problem concerning the pay-setting process, resulted both in lucky grants to the CEO and in the CEOs receiving higher compensation from other sources.

To further explore the relation between CEO total compensation and timing practices, we test the hypothesis that directors who received lucky grants were less likely to resist higher CEO pay. Under this hypothesis, lucky grants to directors were associated with higher CEO compensation (relative to peers). To test this hypothesis, we add to regressions 1 and 2 the lucky director dummy indicating whether the firm granted lucky grants to independent directors in that year. Although the results are very similar using the full sample (see the Internet Appendix), we restrict the sample to firm-year observations where the CEO and the directors did not get a grant on the same day during the year to be able to assess the impact of lucky director grants that were not merely a byproduct of CEO luck. The results, which are displayed in column 5 (pooled regression) and column 6 (firm fixed effects regression) of Table VIII indicate that the coefficients on the lucky director dummies are positive and significant. The coefficients are of similar magnitude in both regressions, and the results indicate that when directors received a lucky grant, the CEO's compensation for the year was higher by about 11% (exp(0.110)) using the estimates of regression 5. Thus, the evidence is consistent with the hypothesis that directors who received lucky grants were less likely to constrain the CEO's total reported compensation.

In the next section, we further investigate the association between CEO influence, governance arrangements, and lucky grants.

IV. Factors Associated with CEO and Director Luck

This section examines which firm-, CEO-, and grant-level factors (other than the existence of simultaneous awards to independent directors) are associated with opportunistic timing. In particular, we ask whether the potential benefit to the CEO from opportunistically timed grants and the level of the CEO's influence on internal decision-making are correlated with the

benefit from granting nonperformance-based compensation via opportunistically timed options because such options are tax deductible. The possibility that backdating had been partly motivated by section 162(m) was stressed in a *Wall Street Journal* editorial ("Backdating to the Future," October 12, 2006) and was one of the factors leading to hearings on the tax treatment of executive pay held by the Senate Finance Committee. To test this hypothesis, we examined whether lucky grants were related to the level of the CEO's salary. In particular, we ran logit regressions where the sample consists of all trading days in months in which a CEO received a grant and the dependent variable is equal to one if the trading day has a grant day and zero otherwise. The variables of interest were an interaction term between a dummy variable indicating whether the trading date had the lowest stock price of the month and three salary-level dummies indicating whether the CEO's salary was lower than, equal to, or higher than $1 million. We found that all the interaction variables were insignificant, thus providing no evidence for the view that opportunistic timing could be explained as an attempt to provide nonperformance compensation in a tax-efficient way that avoids section 162(m) penalties (see Bebchuk, Grinstein, and Peyer (2006a)).

occurrence of lucky grant events both in the CEO sample and the director sample.

Since many lucky grant events owe their status to opportunistic timing, lucky grant events provide a useful basis for studying the factors likely to be associated with such timing. Naturally, some lucky grant events were the product of "pure luck." However, grant events that were lucky as a result of pure luck are not expected to be systematically related to firm, CEO, or grant characteristics (at least after controlling for factors affecting the probability of luck under random selection, such as the fraction of days of the grant event month that had stock prices at the lowest level of the month). Thus, to the extent that lucky grant events are correlated with such characteristics, this correlation can be attributed to correlation between opportunistically timed lucky grants and these characteristics.

We run the regressions below once when the dependent variable is a dummy for a lucky director grant event and once when the dependent variable is a dummy for a lucky CEO grant event. In all of the regressions, we control for relative firm size, SOX, and the fraction of trading days of the month that had a stock price at the lowest level of the month. In some of the specifications, we include firm or CEO fixed effects. When fixed effects are not included, we also control for whether the firm was in a new economy industry. Across all regressions we cluster the errors by CEO to correct for potential correlations across the likelihood of lucky grant events, either to the CEO or to the directors, among the same CEOs.

A. The Timing of Opportunistic Timing

We first examine the extent to which grant events to CEOs and directors in a given firm were more likely to be lucky when the payoffs from such luck were higher. If opportunistic timing of option grants was the product of economic decisions aimed at maximizing inside payoffs, then we should expect to see a higher propensity of grant events being lucky in months with higher potential gains from such timing. Alternatively, if opportunistic timing was the product of habitual following of firms' practices, then we should not expect to find such a significant association.

To explore this issue, we employ firm and CEO fixed effects regression techniques. This approach allows us to investigate whether, during the term of any given CEO in a given company, opportunistic timing was more likely on occasions in which the associated payoffs were larger. Our fixed effect analysis adds to the cross-sectional analysis of Heron and Lie (2009), who report a positive correlation between opportunistic timing and a firm's stock return volatility. While their cross-sectional findings may be due to opportunistic timing being more common in firms with high volatility (such as high-tech firms), our analysis focuses on differences in the odds of lucky grant events over time within the same firm.

The dependent variable in our fixed effect regressions is a dummy variable indicating whether a grant event was lucky. We run our regressions separately

Table IX
Timing of Opportunistic Timing

The table shows the fixed effect logit regression results where the dependent variable is a dummy variable for whether the grant event was at the lowest price of the month and zero otherwise. The independent variables are described in Table III. Due to data availability, the sample is reduced to 18,543 observations for CEO grant events and 25,888 for director grant events. The numbers in parentheses are the estimated standard errors of the coefficients, adjusted for clustering at the executive level. *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Sample: CEO Grant Events		Sample: Director Grant Events	
Dependent Variable: Lucky Grant Dummy	Firm Fixed Effect	CEO Fixed Effect	Firm Fixed Effect	CEO Fixed Effect
Difference between the median and lowest price	0.890***		1.678***	
	(0.250)		(0.299)	
Market component of the median price − lowest price difference		1.832*		3.111***
		(1.107)		(0.937)
Firm-specific component of the median price − lowest price difference		0.771***		1.597***
		(0.267)		(0.304)
Relative size	0.156***	0.160***	0.086**	0.084**
	(0.046)	(0.053)	(0.039)	(0.039)
SOX	−0.548***	−0.565***	−0.265***	−0.263***
	(0.071)	(0.084)	(0.065)	(0.065)
Days in month lowest	6.285***	6.782***	8.493***	8.547***
	(0.729)	(0.902)	(0.773)	(0.776)
Observations	18,543	18,543	25,888	25,888

for CEO grant events and director grant events. The independent variable of interest is the percentage difference between the lowest and median price of the grant month (in log) as an independent variable. This variable is used as a proxy for the potential payoffs from turning a grant actually given on another day into a lucky grant.

The results of these fixed effect regressions are displayed in Table IX. We find that, controlling for CEO fixed effects, the coefficient on the lowest-median difference is positive and significant both in the CEO sample regression (column 1) and in the director sample regression (column 3). These results indicate that the correlation between opportunistic timing and stock price volatility documented in Heron and Lie (2009) was not due entirely to cross-sectional differences, that is, differences between high- and low-volatility firms. During the tenure of any given CEO in any given firm, CEO grant events and director grant events were more likely to be lucky in months in which the difference between the lowest and median price was relatively large, that is, potential gains from opportunistic timing were larger.

The regressions displayed in columns 2 and 4 of Table IX decompose the percentage difference between the lowest and median price of the grant month

into two components: the component driven by market price movements, and the component driven by firm-specific price movements.[33] We find that both the market component and the firm-specific component are positive and significant in both regressions. Overall, the results of Table IX indicate that the timing of when to engage in opportunistic timing was itself opportunistically timed—that is, done in a way that was better-than-random from the perspective of CEOs and directors. The results are thus consistent with the view that the use of opportunistic timing was not a result of a thoughtless, habitual following of a practice, but rather a consequence of an economic decision that was sensitive to payoffs.

B. Luck and CEO Influence

In this section, we test the hypothesis that the odds of a grant event being lucky are higher in the presence of factors associated with greater CEO influence and power over internal pay-setting processes. To the extent that opportunistic timing was merely a product of a rational business decision by the firm to provide nonperformance compensation, the incidence of lucky grants should not correlate with such factors. However, if opportunistic timing was produced by agency problems, then lucky grant events are expected to correlate with such factors.

B.1. CEO Tenure and Background

As in the preceding section, we run regressions, for both the CEO grants sample and the director grants sample, in which the dependent variable is whether a grant event was lucky. In addition to the explanatory variables included in our earlier benchmark regression (see Table IX), we add CEO ownership (and its square) as additional control variables. Our variable of interest, obtained from the ExecuComp database, is CEO tenure (in logs).[34] The longer the CEO tenure, the more influence the CEO can be expected to have had on directors and internal pay practices (Core et al. (1999), Cyert, Kang, and Kumar (2002), and Harford and Li (2007)).

We report the results in Table X. Columns 1 and 5 display the results of the regression for the sample of CEO grant events and director grant events, respectively. In both regressions, consistent with the hypothesis that opportunistic timing was correlated with CEO power, the coefficient on CEO tenure is positive and significant.

We further explore the effect of tenure on the likelihood of luck by separating the tenure effect between CEOs whose previous position was with the firm (insider CEOs) and CEOs whose previous position was with a different

[33]This decomposition is in the spirit of Lie (2005), who uses it to show that the pattern of returns accompanying grant events reflects backdating and not merely spring-loading.

[34]The need for information about the firm to be available on ExecuComp reduces the size of the sample to 6,001 (CEO grant events sample) and 7,990 (director grant events sample).

Table X

Luck and Corporate Governance

The table shows logit regression results where the dependent variable is a dummy variable for whether the grant was given at the date at which the lowest price of the month prevailed and zero otherwise. The sample consists of 6,001 (7,990) CEO (director) observations with at least one grant event and with governance information at the firm level from the IRRC and the ExecuComp databases. Regression 4 excludes CEO grants where directors did receive a grant on the same day. The independent variables are described in Table III. The numbers in parentheses are the estimated standard errors of the coefficients, adjusted for clustering at the executive level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	CEO Luck				Director Luck		
Dependent Variable: Lucky Grant Dummy	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CEO tenure	0.1395**			0.179***	0.017**		
	(0.052)			(0.064)	(0.009)		
CEO tenure × CEO outsider dummy		0.359***	0.374***			0.023**	0.037**
		(0.117)	(0.139)			(0.012)	(0.015)
CEO tenure × CEO insider dummy		0.096*	0.158**			−0.001	0.015
		(0.057)	(0.071)			(0.010)	(0.011)
CEO outsider dummy		−0.614**	−0.354			−0.297*	−0.169
		(0.293)	(0.349)			(0.166)	(0.203)
Independent board dummy			−0.440***	−0.790***			−0.255*
			(0.146)	(0.152)			(0.145)
Independent board dummy × Lucky director current year				0.719***			
				(0.199)			
Lucky director current year				0.247**			
				(0.116)			
Independent compensation committee dummy			0.100	0.112			0.087
			(0.327)	(0.334)			(0.167)

(*continued*)

Table X—*Continued*

	CEO Luck				Director Luck		
Dependent Variable: Lucky Grant Dummy	(1)	(2)	(3)	(4)	(5)	(6)	(7)
5% blockholder on compensation committee dummy			0.595	0.530			−0.018
			(0.594)	(0.594)			(0.600)
5% blockholder on compensation committee × independent compensation committee dummy			−1.231*	−1.176*			−0.753**
			(0.713)	(0.721)			(0.325)
Control variables:							
CEO ownership >5% and <25% dummy	0.376**	0.348**	0.127	0.128	0.470**	0.426**	0.371*
	(0.143)	(0.145)	(0.193)	(0.185)	(0.194)	(0.167)	(0.203)
CEO ownership >25% dummy	0.456	0.393	−0.519	−0.296	−0.386	−0.344	−0.788
	(0.330)	(0.333)	(0.546)	(0.519)	(0.509)	(0.433)	(0.550)
Relative size	−0.05*	−0.052*	0.007	0.003	−0.032	−0.044	−0.005
	(0.029)	(0.029)	(0.036)	(0.037)	(0.036)	(0.032)	(0.040)
New economy	0.093	0.097	0.125	−0.262***	0.133	0.063	0.211
	(0.132)	(0.134)	(0.164)	(0.122)	(0.175)	(0.159)	(0.200)
SOX	−0.281***	−0.277***	−0.212*	−0.221**	−0.110	−0.082	0.011
	(0.102)	(0.102)	(0.120)	(0.117)	(0.110)	(0.105)	(0.126)
Difference between the median and lowest price	1.710***	1.726***	2.609***	2.562***	2.508***	2.071***	3.267***
	(0.388)	(0.388)	(0.473)	(0.483)	(0.582)	(0.529)	(0.662)
Days in month lowest	7.396***	7.594***	13.866***	13.830***	7.862***	7.610***	26.75*
	(1.756)	(1.769)	(2.589)	(2.608)	(2.036)	(1.620)	(15.00)
Constant	−2.918***	−2.841***	−3.231***	−3.277***	−3.394***	−3.098***	−3.339***
	(0.165)	(0.169)	(0.385)	(0.381)	(0.197)	(0.170)	(0.296)
Observations	6,001	6,001	4,199	3,811	7,990	7,990	5,181

firm (outside CEOs). We expect tenure to have a greater effect on the likelihood of luck when the CEO was an outsider than when the CEO was an insider, since insider CEOs are likely to have relationships with directors even in their first years as CEOs. We therefore include a dummy variable for whether the CEO was an outsider, and we also interact the tenure variable with two dummy variables: one for whether the CEO was an insider and the other for whether the CEO was an outsider. We present the results in columns 2 and 6. The coefficients on the CEO outsider dummy are negative and significant in both the CEO regression and the director regression. Furthermore, the coefficients on the tenure–outsider interaction variable are larger than those on the tenure–insider interaction variable.

The results are generally consistent with the notion that opportunistic timing, both of CEO grants and of director grants, was more likely when CEOs had more influence on corporate decision-making.

B.2. Board and Committee Composition and Independence

Our next step is to add additional explanatory variables from the IRRC database to explore how CEO and director luck were associated with the composition of the board and compensation committee.[35] The compensation committee is in charge of negotiating a compensation contract with the manager, and therefore it is important to explore whether compensation committee structure and incentives of committee members played a role in the decision to allocate lucky grants. The board appoints and oversees the compensation committee.

In particular, we are interested in the extent to which the board and the compensation committee were independent. Director independence has been viewed as an instrument to improve board oversight in general, and oversight over executive compensation in particular. State corporate laws have long encouraged, and stock exchanges have recently required, a majority of independent directors on the board and a compensation committee consisting of independent directors. While formal independence requirements could be insufficient to eliminate CEO influence on directors (Bebchuk and Fried (2004)), they are likely to reduce it.

We use the IRRC definition of director independence to determine whether directors were independent. Using these data, we add two explanatory variables: a dummy variable for whether the board had a majority of independent directors, and a dummy variable for whether the compensation committee consisted of independent directors.

We also add a dummy variable for whether the compensation committee had at least one blockholder, defined as a director holding at least 5% of the shares of the company and not employed by it (information on the number of shares that each director held is available from IRRC). An outside blockholder is expected

[35]The need for the relevant information about the firm to be available on the IRRC database further reduces the size of our sample to 4,199 grant events (CEO sample) and 5,181 (director sample).

to have relatively strong incentives to maximize share value and therefore to act independent of management and seek compensation arrangements that serve shareholder interests. Since the extent to which a blockholder on the compensation committee can be expected to serve shareholder value might be influenced by whether the blockholder and other members of the committee are independent, we also include an interaction dummy for whether the compensation committee was both independent and had a blockholder on it.

Our results are displayed in Table X, column 3 (CEO sample) and column 7 (director sample). The coefficient on the independent board dummy is negative and significant at the 1% level in both regressions, indicating that opportunistic timing is associated with boards that lacked a majority of independent directors. The size of the coefficient implies that having a majority of independent directors on the board reduced the odds that a CEO grant event would be lucky by 36% ($=\exp(-0.44)-1$), and reduced the odds that a director grant event would be lucky by 23% ($=\exp(-0.255)-1$). This result is consistent with the view that opportunistic timing reflects governance/agency problems.

Given our finding in Section II that some independent directors received opportunistically timed lucky grants themselves, we also examine the relation between the timing of director grants and the effectiveness of independent directors in limiting timing practices. In particular, we test the hypothesis that the association between board independence and lower odds of CEO luck weakened when independent directors received lucky grants. To test this hypothesis, we add to the CEO luck regression of column 3 a lucky director dummy, indicating whether the directors received lucky grants in that year, and an interaction variable between the independent board dummy and the lucky director dummy. To avoid a mechanical link produced by lucky director grants that coincided with lucky CEO grants, we restrict the sample to observations where the CEO did not receive a grant on the same day as the lucky directors.

Our results are displayed in column 4 of Table X. We find that the coefficient on the interaction variable is positive and highly significant. The magnitude of the coefficient on the interaction variable (0.719) is very close to the coefficient on the independent board dummy (-0.790) and the sum of the two is not significantly different from zero. Thus, the data are consistent with the hypothesis that the correlation between board independence and reduced odds of CEO luck was weakened, and indeed there is no evidence for its existence, when independent directors received lucky grants themselves during the year. The coefficient on the lucky director dummy is also positive and highly significant, indicating that the CEO was more likely to be lucky when independent directors received lucky grants—even after excluding director grants coinciding with CEO grants. This result is also consistent with the hypothesis that lucky directors were less likely to constrain timing practices. Overall, the results of column 4 highlight that the formal classification of directors as independent does not fully determine their true level of independence.

All the regressions in Table X indicate that having a compensation committee that is independent and that includes a blockholder reduces the odds of a grant event being lucky. The coefficient on the independent compensation committee

dummy and the coefficient on the compensation committee blockholder dummy are not significant by themselves but their interaction is significant as well as economically meaningful. Using the coefficient estimates in regressions 3 and 7 indicates that having a compensation committee that is independent and includes a blockholder reduced the odds of a CEO grant event being lucky by 71% (=exp(−1.231) −1) and reduced the odds of a director grant event being lucky by 53% (=exp(−0.753) −1).

It is worth noting that the significance of tenure does not go away (nor even substantially change in magnitude) when board and committee independence variables are added. This result is consistent with the view that the presence or absence of a majority of formally independent directors on the board did not fully determine the extent to which the board was influenced by the CEO in making compensation and oversight decisions.[36]

Our findings concerning board independence and committee independence contribute to the literature on the potential benefits of independent directors. While previous research has not been able to establish a link between board independence and better corporate performance in general (e.g., Bhagat and Black (1999, 2002) and Chhaochharia and Grinstein (2007)), some specific types of decisions for which such independence matters have been identified (e.g., Weisbach (1987), Byrd and Hickman (1992), Shivdasani (1993), Brickley, Coles, and Terry (1994), Cotter, Shivdasani, and Zenner (1997), Dann, Guercio, and Partch (2003), and Gillette, Noe, and Rebello (2003)). In particular, it has been shown that director independence has an impact on executive compensation decisions (e.g., Core et al. (1999) and Chhaochharia and Grinstein (2009)) and on the incidence of fraud (e.g., Beasley (1996, 2000) and Dechow, Sloan, and Sweeny (1996)). Thus, opportunistic timing is one of the contexts in which director independence appears to make a difference.

Our findings also contribute to the work on the potential governance benefits of blockholders (Bertrand and Mullainathan (2000, 2001)). This work shows how the existence of a large outside blockholder makes a difference for certain aspects of firm behavior. We show that, with respect to opportunistic timing, an outside blockholder needs to be on the compensation committee to make a difference.

Finally, we also replace the new economy dummy with industry dummies based on the Fama–French classification into 12 industry sectors. Consistent with the univariate results noted in Section I, we find that none of the industry dummies is statistically significantly different from the others. Thus, we do not find support for the hypothesis that industry norms and culture were important drivers of timing practices (Fleischer (2007) and Walker (2006)). Once the payoffs from timing and governance provisions are controlled for, there is no statistically significant difference across industries.

[36]In addition to director independence and director ownership, there might well be other characteristics of serving directors that are relevant to the odds of lucky grants that our analysis does not identify. In particular, in a contemporaneous study that complements our work, Bizjak et al. (2009) show a link between the spread of option backdating and interlocking directors.

C. Serial Luck

The preceding subsections identify a number of variables that are correlated with lucky grants to CEOs and directors. Undoubtedly, there are CEO and firm traits that could affect the incidence of lucky grant events that are not included. Characteristics such as aspects of the CEO's personality and the firm's compensation staff might be difficult or impossible for researchers to observe. However, to the extent that such traits exist, one would expect luck to be "serial" or "persistent." That is, controlling for all of the variables used thus far, one would still expect a grant event to be more likely to be lucky if a preceding grant was lucky. Such persistence would not be expected, of course, under random selection.

To examine the existence and magnitude of such persistence, we re-run the regressions reported in Table X but this time adding two new dummy variables. The first dummy variable is equal to one if the preceding grant event in our data set was lucky. The other dummy variable is equal to one if a preceding grant event exists and it was not lucky. Our default is thus grants that were not preceded in our data set by another grant. We run one regression where the sample includes all CEO grant events, and the dependent variable is a dummy for whether the CEO grant event was lucky, and another regression where the sample includes all director grant events, and the dependent variable is a dummy for whether the director grant event was lucky.

Table XI displays the results. In both regressions, the coefficient on the previous lucky dummy is positive and significant. In the CEO regression, the coefficient on a preceding grant event being lucky is 0.366, which implies that, compared to CEO grant events for which we have no information about preceding grants, a CEO grant event preceded by a lucky CEO grant event was 44% more likely to be lucky. The coefficient on the dummy for having a preceding grant that was not lucky (which lumps together all other price ranks, including preceding grants at the second lowest price of the month) is negative in both regressions but significant only in the director regression.

Regressions 3 and 4 seek to address the possibility that our previous grant dummies suffer from a bias because we cannot classify a firm's first grant as being preceded by a lucky or not-lucky grant. In these regressions, we eliminate the first grant of each firm from the sample and thus for each grant remaining in the sample we know whether its preceding grant was lucky. The coefficients on the "previous grant event lucky" dummies in regressions 3 and 4 are positive and significant (at the 1% confidence). Furthermore, the coefficient on regression 3 (4) is very similar in magnitude to the difference in the coefficients between "previous grant event lucky" and "previous grant event unlucky" for regression 1 (2). Thus, we conclude that there is little reason to believe the coefficient estimates in regressions 1 and 2 were significantly biased due to the fact that we do not know for some grants the previous grant's luck status.

In sum, even after controlling for all of the variables that we have found to be associated with opportunistic timing and additional controls, a grant event to a CEO or to independent directors was more likely to be lucky when a preceding

Table XI
Serial Luck

The table shows the results of logit regressions. The dependent variable in the first two regressions is a dummy equal to one if the CEO grant event was at the lowest price of the month and zero otherwise. In the third and fourth regressions, the dependent variable is one if the director grant event was at the lowest price of the month and zero otherwise. The sample size is reduced because data from ExecuComp and IRRC are required. The first and third regressions include all grant events. The second and fourth regressions exclude the first event in our database so that we can determine whether the previous grant event was lucky or not. The independent variables are described in Table III. The numbers in parentheses are the estimated standard errors of the coefficients, adjusted for clustering at the executive level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable: Lucky Grant Dummy	Lucky CEOs		Lucky Directors	
Previous grant event lucky	0.366*	0.559***	0.229**	0.658***
	(0.192)	(0.196)	(0.111)	(0.184)
Previous grant event not lucky	−0.122		−0.424**	
	(0.125)		(0.192)	
Relative size	0.023	0.038	−0.024	−0.029
	(0.042)	(0.054)	(0.039)	(0.042)
SOX	−0.225*	−0.217***	0.018	0.012
	(0.122)	(0.157)	(0.123)	(0.126)
Difference between the median and lowest price	2.376***	2.621***	2.785***	2.470***
	(0.656)	(0.699)	(0.668)	(0.749)
CEO tenure × CEO outsider dummy	0.171**	0.392	0.014*	0.015*
	(0.071)	(0.267)	(0.011)	(0.011)
CEO tenure × CEO insider dummy	0.386**	0.055	0.037**	0.035**
	(0.170)	(0.103)	(0.014)	(0.014)
CEO outsider dummy	−0.388	−0.634	−0.207	−0.209
	(0.392)	(0.634)	(0.201)	(0.207)
Independent board dummy	−0.420**	−0.281	−0.240*	−0.311**
	(0.165)	(0.223)	(0.136)	(0.139)
Independent compensation committee dummy	0.155	0.924	0.100	0.057
	(0.322)	(0.637)	(0.165)	(0.169)
5% blockholder on compensation committee dummy	0.575	1.102	0.015	−0.401
	(0.555)	(1.069)	(0.585)	(0.650)
5% blockholder on compensation committee × independent compensation committee dummy	−1.203*	−1.724	−0.765**	−0.965**
	(0.673)	(1.202)	(0.373)	(0.435)
CEO ownership >5% and <25% dummy	0.102	0.155	0.352*	0.266
	(0.208)	(0.266)	(0.203)	(0.229)
CEO ownership >25% dummy	−0.530	−0.669	−0.820*	−0.626
	(0.583)	(1.054)	(0.509)	(0.560)
Days in month lowest	14.942***	17.785***	4.793*	4.751
	(2.628)	(3.518)	(2.856)	(3.010)
Constant	−3.581***	−4.455***	−3.259***	−3.451***
	(0.487)	(0.755)	(0.453)	(0.438)
Industry dummies	Yes	Yes	Yes	Yes
Observations	4,199	2,374	5,181	4,794

grant event to this CEO or to directors in this firm, respectively, was lucky. The presence of such serial luck indicates that, beyond the factors we have identified, opportunistic timing was also driven by additional CEO and firm characteristics that subsequent research would hopefully identify.[37]

V. Epilogue: The End of Backdating

The analysis of the preceding sections documents that the passage of SOX in 2002 did not eliminate opportunistically timed lucky grants; as Tables I and II document, a significant incidence of such grants existed during the period between the passage of SOX and the end of 2005. In this section, we extend the period that we have investigated to examine how backdating was affected by the massive media and regulatory attention devoted to this practice starting in the spring of 2006.

In March 2006, the *Wall Street Journal* (WSJ) published its "perfect payday" article, describing in detail several egregious examples of backdating. This article was followed in subsequent weeks by a series of additional stories on the subject. This series, which subsequently won a Pulitzer Prize for public service reporting, led to numerous probes by regulators, investor groups, and plaintiff lawyers. To examine how the intense public attention to opportunistic timing affected the practice, we extend our data set to the years 2006 and 2007 and examine the incidence of lucky grants during the 19-month period from April 2006 (the month following the initial WSJ article) to the end of 2007.

We use procedures similar to those employed in Section I to identify lucky grants and to estimate the incidence of lucky grants due to opportunistic timing during this period. During April 2006 to December 2007, out of 2,812 CEO grant events, 158 (5.6%) were lucky grants, which is close to the expected number of lucky grants under random assignment of 147. Thus, during the 19-month period following the appearance of the WSJ article, the actual number of lucky CEO grants exceeded the expected number under random allocation by a mere 7%. In contrast, repeating this calculation for the 19-month period ending in March 2006 (September 2004 to March 2006), we find that the number of lucky CEO grants was almost 50% higher than expected under random assignment.

We find similar results with respect to director grant events. During the 19-month period (April 2006 to December 2007) following the appearance of the WSJ article, the number of director grant events that were actually lucky exceeded the number of lucky grant events expected under random assignment by about 12%. In contrast, during the preceding 19-month period (September 2004 to March 2006), the number of direct grant events that were actually lucky exceeded the expected number of lucky grant events by about 25%.

Overall, we find that once the practice of backdating came into the limelight in the spring of 2006, the incidence of opportunistically timed lucky grants

[37]Bebchuk, Cremers, and Peyer (2009) identify one such additional variable that can help explain the incidence of lucky grants—the CEO pay slice, which they define as a fraction of the aggregate compensation awarded to the top five executives captured by the CEO. They show that a higher CEO pay slice is associated with higher odds of the CEO getting a lucky grant.

declined drastically. Facing close scrutiny of the timing of option grants by outsiders, decision-makers inside firms responded by curtailing their use of opportunistic timing. While insider opportunism in the particular form of backdating might continue to be prevented by close outside scrutiny, understanding how such opportunism was influenced by governance mechanisms and insiders' incentives remains important.

VI. Conclusion

In this paper, we investigate the opportunistic timing of options to CEOs and independent directors during the 1996 to 2005 period. Opportunistic timing increases the incidence of lucky grants given on days with the lowest price of the month. We use the occurrence of lucky grants as a basis for investigating the relation between opportunistic timing of option grants and corporate governance.

We show that the grants awarded to independent directors, who are charged with overseeing the company's executives, were themselves affected by opportunistic timing. The timing of director grants was not merely a byproduct of the directors being simultaneously awarded grants with executives or of firms routinely timing grants to all recipients.

We also find that CEOs who received lucky grants had higher income from other (reported) sources of compensation, thus finding no evidence for the hypothesis that firms providing opportunistically timed CEO grants reduced CEOs' compensation from other sources. We also do not find support in the data for the view that opportunistic timing was a result of the habitual following of firm or industry practices. Firms' choices with respect to when to engage in opportunistic timing were themselves timed in ways that benefited grant recipients; for any given firm, grants to both CEOs and independent directors were more likely to be lucky when the payoffs from such luck were higher.

Opportunistic timing, we find, is correlated with three variables associated with greater CEO influence on pay-setting. In particular, CEO grant events and director grant events were both more likely to be lucky when the company lacked a majority of independent directors on the board, when it did not have an independent compensation committee with an outside blockholder on it, or when it had a long-serving CEO.

We find that CEO luck and CEO reported compensation were associated with director luck, even after excluding director grants coinciding with CEO grants. In addition, the association between having a majority of independent directors and reduced CEO luck disappears when independent directors received lucky grants themselves. The formal classification of directors as independent thus might not fully determine how they perform in terms of constraining executive compensation practices and levels.

In closing, our analysis shows the existence of serial luck. This finding indicates that, beyond the factors we identify, there might be other systematic factors that drive opportunistic timing. Identifying these factors would be a worthwhile task for future research. An examination of the incidence of lucky

grants, the methodology we use in this paper, can be a useful tool in such future research on opportunistic timing.

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