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EXECUTIVE TURNOVER IN THE STOCK OPTION BACKDATING WAVE: THE IMPACT OF SOCIAL CONTEXT

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While boards are known to react to corporate misconduct by removing the executives responsible, little is known about whether the board's response is shaped by the firm's social context. Using the 2006 stock option backdating scandal, in which firms manipulated stock option grant dates, we examine the impact of two dimensions of social context—the pervasiveness of the misconduct and the media attention to the misconduct. We find that firms implicated later in the backdating scandal are less likely to experience executive turnover than those implicated earlier. We also find that the amount of media attention to backdating at the time a firm is implicated in the scandal increases the likelihood that the firm experiences executive turnover. Copyright © 2012 John Wiley & Sons, Ltd.

INTRODUCTION

Corporate misconduct can inflict damage to a firm's image and reputation, as well as undermine its legitimacy. Firms accused of severe transgressions are pilloried in the press, and may be subject to direct government intervention. Siemens, for example, was found guilty of violating the Foreign Corrupt Practices Act by bribing government officials across the globe in order to secure contracts. Following investigations by the German government, the U.S. Department of Justice (DOJ), and the Securities and Exchange Commission (SEC), the company was levied a $1.6 billion fine: the largest for bribery in business history. Such instances of corporate misconduct can result in widespread negative publicity and broad speculation concerning the management and oversight of a company, not to mention the financial repercussions. Disclosure of corporate misconduct will evoke sensemaking on the part of a firm's constituents. Negative interpretation by the press, the financial community, and the public may lead to the stigmatization of a firm as well as its leaders (Wiesenfeld, Wurthmann, and Hambrick, 2008). Corporate misconduct can, thus, undermine an organization's legitimacy in the eyes of key constituencies.

Prior research suggests that, since a firm's reputation and its legitimacy with constituents are vital, a company will seek to restore or repair damage to its legitimacy by taking decisive action and thus 'reintegrate' with stakeholders (Pfarrer *et al*., 2008; Suchman, 1995). One of the most common actions taken by a board to repair or restore a firm's legitimacy is executive turnover. As noted by Suchman (1995: 598), executive turnover can 'symbolically distance

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the organization from "bad influences."' In the case of Siemens, the chief executive officer (CEO) and the chair of the board were removed along with other senior executives, and the board subsequently appointed the first outsider CEO in the history of the company. Similarly, in the more widespread accounting fraud that followed the demise of Enron, firms with financial restatements experienced higher subsequent executive turnover than firms without restatements (Arthaud-Day *et al*., 2006; Desai, Hogan, and Wilkins, 2006; Srinivasan, 2005).

While these highly visible incidents of corporate misconduct prove insightful in understanding how a board seeks to address damage to its firm's legitimacy, we know little about how the board's response to corporate misconduct is influenced by the social context surrounding the firm's misconduct. Social context matters because it affects how seriously the misconduct is perceived by external and internal constituents, which, in turn, influences the level of pressure placed upon the board to respond. In the case of high profile corporate misconduct, two dimensions of social context are particularly noteworthy: the pervasiveness of the misconduct and the degree of media attention. When many firms are implicated in the misconduct, it becomes easier for a board to justify or rationalize its firm's transgression. As a result, how the board responds to its firm's misconduct can be influenced by the number of other firms previously found to have engaged in the same misconduct. The amount of media attention focused on the misconduct is also an important aspect of the social context. The press has been found to play a key role in detecting corporate fraud (Dyck, Morse, and Zingales, 2010), as well as in constructing the context within which the public and investors perceive corporate misconduct. The media, thus, serves a prominent function in corporate scandals by drawing initial attention to, as well as defining the public's perception of, such behavior (Hoffman and Ocasio, 2001). As a result, the response of the board to its firm's misconduct is likely to differ depending on the extent of media attention received.

We test these arguments by investigating executive turnover in firms implicated in stock option backdating. The stock option backdating scandal was a widespread occurrence of corporate misconduct (Bebchuk, Grinstein, and Peyer, 2010; Lie, 2005; Heron and Lie, 2007; Yermack, 1997).[1] According to the SEC, backdating violates securities laws and constitutes financial fraud *if* the firm fails to account for the value of the option grants as compensation expense (thus overstating its earnings), and fails to communicate the practice of backdating to the SEC and its shareholders in a timely manner. In other words, backdating is not illegal unless the firm fails to comply with the reporting requirements of accounting for the expense in its compensation expense and disclosing the issuance of in-the-money grants to the SEC and investors in a timely fashion. However, because investors are not always aware that the stock options granted are in-the-money, backdating has been termed 'stealth compensation': it enables executives to enrich themselves by manipulating the timing of stock option grants (Lie, 2005).[2] Due to the 'murky' nature of this practice, there is uncertainty in regard to the extent to which backdating damages a firm's reputation and legitimacy. As a result, we propose that a board will look to the social context surrounding its firm's implication in backdating to assess the need to respond. Specifically, we argue that as the backdating scandal unfolds, the pervasiveness of the misconduct reduces the pressure on the board of an implicated firm to respond. As a result, the likelihood that a firm experiences executive turnover as a consequence will diminish as more and more companies are implicated. In addition, the amount of media attention varies over time. Greater media attention will increase the scrutiny on backdating; thus, the likelihood that a firm will experience executive turnover will increase when there is greater media attention at the time that the firm is implicated.

While a board's response to its firm's backdating is subject to the influence of social context, the severity of the transgression in terms of its financial and legal ramifications differs across firms. We propose that the severity of a firm's backdating will moderate the impact of social context on the board's response to corporate misconduct. Specifically, the impact of the pervasiveness of the misconduct on the board's response will be

[1] Heron and Lie (2007) found that 29.2 percent of the 7,774 firms they examined had backdated stock option grants.

[2] It was not until 2004 that the Financial Accounting Standards Board (FASB) clearly mandated expensing of all options in its Statement 123 Accounting for Stock-Based Compensation.

weaker the greater the financial and legal ramifications associated with its firm's backdating. On the other hand, the influence of media attention on the board's response will be stronger when there are greater financial and legal ramifications associated with the firm's backdating.

Our study contributes to a better understanding of how an implicated firm's board responds to corporate misconduct. In examining the consequences of misconduct, prior studies have found that a board takes action to replace the executives in office at the time of the financial fraud in order to repair or restore its firm's legitimacy (Arthaud-Day *et al*., 2006; Desai *et al*., 2006; Srinivasan, 2005). Research has also found that boards are more likely to hold their executives responsible for financial misconduct when the transgression is more severe (Srinivasan, 2005). Our study examines the role of social context in understanding why some boards are more likely than others to respond to corporate misconduct. Our focus on social context acknowledges that executive turnover in general, and executive turnover following corporate misconduct specifically, are influenced by the broader social context. This differs from prior research, which has primarily focused on internal firm factors such as performance and power in explaining executive turnover.

THEORY AND HYPOTHESES

Stock option backdating

The growing use of incentivized pay, which now represents the majority of executive compensation, has led to increased scrutiny of the use of stock options.[3] Several early studies highlighted the fact that firms' stock returns were abnormally high immediately after the firms issued stock options, attributing this finding to the opportunistic timing of stock option grants (Aboody and Kasznik, 2000; Chauvin and Shenoy, 2001; Yermack, 1997). However, it was a study by Lie (2005) that conclusively showed that firms were issuing stock option grants using retroactive dates (backdating) on which the stock price was lower.[4] Backdating enables a company to give stock option grants that are in-the-money, since the company can pick a past date when the stock price was lower than the current market price.

The SEC considers backdating financial fraud when the firm's financial statements do not reflect the value of in-the-money stock options. While the passage of the Sarbanes-Oxley Act of 2002 changed the reporting requirement for stock option grants, it did not change the penalty for failure to file in a timely manner or lead to more SEC investigations into backdating (McWilliams, 2007). A major overhaul of executive compensation disclosure rules was proposed by the SEC in January of 2006, but it did not initially address the practice of backdating. However, because of the public furor over backdating in early 2006, amendments were added to curb backdating when the compensation disclosure ruling was finally approved in July of 2006. As SEC Chairman Cox noted in his remarks at the SEC Open Meeting (26 July 2006), 'with more than 20,000 comments, it is now official that no issue in the 72 years of the SEC's history has generated such interest' (http://www.sec.gov/news/speech/2006 [10 January 2007].

Studies have found that the disclosure of a firm's stock option backdating practices can have a strong negative impact on shareholder wealth (Bernile and Jarrell, 2009; Narayana, Schipani, and Seyhun, 2009). Because investors have imperfect information about firms and their management, the perception of firms' disclosure quality, broadly defined as *information risk*, affects firm value—with lower quality disclosure associated with lower valuations (Easley and O'Hara, 2004; Epstein and Schneider, 2008). A firm's implication in backdating could prompt investors to reassess the firm's agency costs stemming from the separation of ownership and control (Jensen and Meckling, 1976). Backdating stock options has been shown to have a significant negative effect on shareholder wealth, with an eight percent loss ($500 million), on average, in shareholder value

[3] Incentivized pay is usually stock option pay that ties managerial compensation to the performance of the firm's stock. For the CEOs of large public firms, stock option pay represents 85 percent of total compensation (Moody's, 2006).

[4] The grant date on which a stock option is issued sets the strike price of the grant. The value of the stock option grant is the difference between the current market value of the stock and the strike price of the grant. When a stock option is granted at-the-money, the value of the option grant is '0,'whereas an in-the-money grant occurs when the strike price is lower than the current market price.

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(Narayana *et al*., 2009). Narayana *et al*., (2009) proposed that the destruction in shareholder value was due not only to the underreporting of compensation expense but also to the legal, tax, and governance implications associated with backdating.[5] Similarly, Bernile and Jarrell (2009) found an economically large, and statistically significant, negative abnormal return for firms implicated in backdating, especially around the release of the first news events. They argued that 'the magnitude of the implied wealth changes seems too large to be attributed to any reasonable estimate of direct out-of-pocket costs of the backdating scandal or to the resulting legal penalties disclosed to date' (Bernile and Jarrell, 2009: 4). Instead, they claimed that agency costs, rather than direct out-of-pocket costs, were the first-order factor of importance determining the negative impact on shareholder wealth associated with news of backdating.

The information risk associated with backdating can also prompt a firm's constituents to assess the integrity and trustworthiness of its executives. An inference can be made that the firm's management is deceitful, and has enriched itself at the expense of shareholders. This is likely to have repercussions for the executives associated with the backdating. Not surprisingly, Bernile and Jarrell (2009) found that 36 percent of the firms that were identified by the *Wall Street Journal* as under scrutiny for backdating had experienced executive turnover. However, not all of these firms experienced such turnover. The question is then why the boards of some firms implicated in backdating of stock options removed its executives, while the boards of other firms similarly implicated chose not to do so?

As noted earlier, backdating is not necessarily illegal. It is illegal when backdated stock options are neither properly expensed nor revealed, and given the 'murky' nature of backdating, there is uncertainty regarding the extent to which it will damage a firm's reputation and legitimacy, which makes it difficult for its board to decide how to respond. To reduce this uncertainty, a board is likely to look to the social context surrounding the firm's implication in stock option backdating to assess the need to respond. In the following sections, we discuss how the pervasiveness of backdating and the amount of media attention it receives may serve as important dimensions of the social context that can influence a board's decision to hold its executives responsible for corporate misconduct.

Executive turnover: the influence of backdating's pervasiveness

The backdating scandal occurred in a defined time period (roughly May 2006– June 2007), during which the social context surrounding this misconduct changed considerably. Our sample consists of the firms that were identified by the *Wall Street Journal* as implicated, and Figure 1 shows the distribution of the dates when the first news of these firms' involvement in backdating occurred. The list includes both self-disclosures by the firms as well as announcements by the SEC or DOJ on backdating investigations. The pattern of backdating revelations observed in Figure 1 is shaped as a 'wave'— possessing a distinct starting point, a peak, and an end.

Initially, when the *Wall Street Journal* ran its cover story on 18 March 2006 (Forelle and Bandler, 2006), news of backdating came as a shock to the business community. Although the vast majority of companies relied heavily on stock options as a means of executive compensation, for the first time investors and the public became aware that managers were manipulating the use of stock options to benefit themselves. The investigation by the *Wall Street Journal* into six especially egregious cases in which manipulation of stock option grant dates resulted in large financial payoffs to the CEOs of the companies involved[6] elicited a strong response on the part of the media, government, and the financial community. The perception of backdating as an illegal manipulation of stock option grant dates to provide 'stealth compensation' to a firm's executives without proper disclosure to investors undermined trust in

[5] Backdating can also incur additional accounting and legal expenses as a result of internal and external investigations. The largest accounting review-and-legal expenses associated with backdating to date include: Mercury Interactive, $84.0 million; Comverse Technology, $68.0 million; Broadcom, $49.9 million; KLA-Tencor, $38.5 million; Affiliated Computer Services, $26.6 million; and Juniper Networks, $25.2 million (Glass, Lewis & Co, 2007).

[6] The six companies investigated were Affiliated Computer, Vitesse Semiconductor, Comverse Technology, UnitedHealth Group, Brooks Automation, and Jabil Circuit (Forelle and Bandler, 2006).

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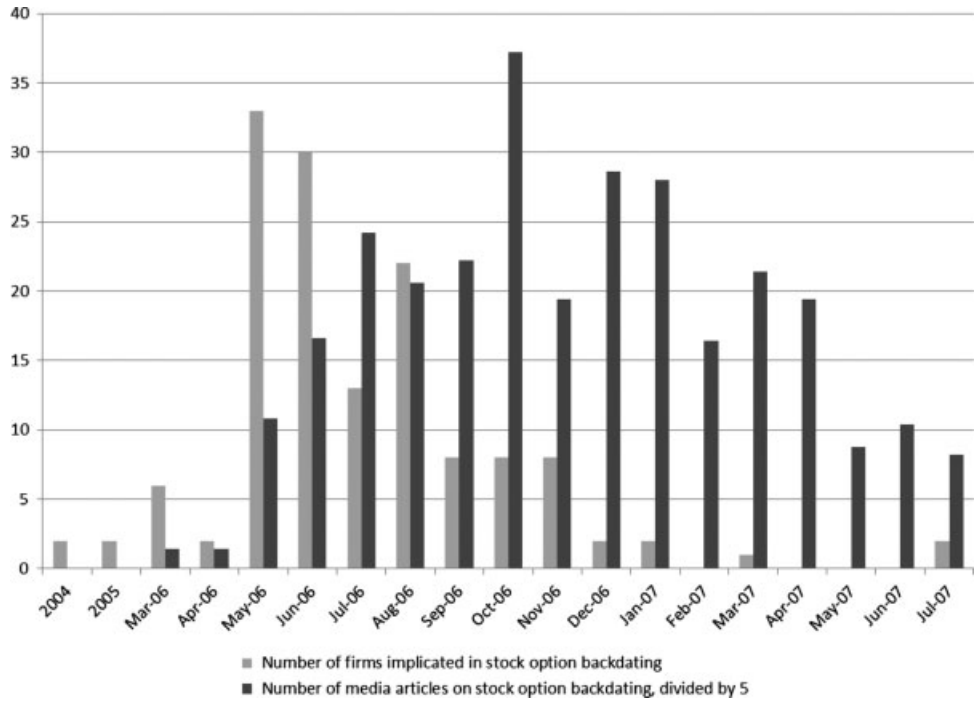

Figure 1. Firms implicated for backdating and media attention to backdating, by month (N=141)

such firm's management. The seriousness of the response that news of backdating elicited within the financial community, and the general mistrust that ensued regarding stock option practices, prompted boards to conduct their own internal investigations into stock option practices at their respective firms to make sure that practices were in accordance with SEC rules. The stigmatization of backdating when it was first revealed provides the social context for the early stage of the backdating scandal. Branded a severe transgression of investor trust, backdating stigmatized the firm and its leaders, including the board members formally in charge of executive compensation. As a result, we expect that the board of a firm implicated early in the backdating scandal will be inclined to restore investor confidence in the firm's management and protect the company from further damage by removing those executives responsible.

The social context surrounding backdating, however, changes significantly as more companies were found to have engaged in the practice. During the March to December 2006 period, the extent of the backdating scandal became more apparent, as more and more firms came under scrutiny for their backdating practices. The increasing number of disclosures of firms with questionable stock option practices revealed that backdating was very widespread, especially in the technology sector, where firms provide in-the-money stock options not only as an incentive to reward incumbent management but also as a recruiting tool to attract and retain key employees (Heron and Lie, 2007; 2009).

We argue that as more companies are implicated in the backdating scandal, the board becomes less likely to remove the executives responsible. March (1994) argued that, rather than analyzing decisions strictly in an economic rational sense, organizations utilize the *logic of appropriateness* to make decisions. In this logic, organizational decisions are shaped by *situational recognition*, and practices and rules become more proper and legitimate as more decision makers use them (March, 1994: 100). As more firms are implicated in the backdating scandal, the framework through which the board of an implicated firm defines its situation and decides how to respond shifts. The pervasiveness of the misconduct alters the board's perception of the severity of the transgression committed by the firm. This is because the firm's implication in backdating is not an isolated incident, but instead occurs within a social context in which many firms have already been implicated. The pervasiveness of the misconduct makes it

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easier for the board to justify or rationalize the firm's transgression, since it appears 'less inappropriate.' Thus, the board's perception of the stigma caused by the firm's transgression diminishes, which reduces the likelihood that the board will respond to the firm's misconduct. As a result, we expect that firms implicated later in the backdating wave are less likely to experience executive turnover due to backdating than those implicated earlier.

Hypothesis 1: The likelihood that a firm experiences executive turnover due to its stock option backdating is negatively related to the position of the firm's first news on backdating scrutiny in the backdating wave.

Executive turnover: the influence of media attention

The backdating scandal was not the first incident of corporate malfeasance that drew public attention. Starting with the disclosure of Enron's massive accounting irregularities and eventual bankruptcy in October 2001, a major corporate governance scandal unfolded that involved dozens of companies that had overstated their earnings, including the largest bankruptcy in U.S. history (i.e., WorldCom). The business press disclosure of the fraud at Enron and subsequent media attention on the financial scandal resulted in a spillover effect that affected public and investor confidence in the financial markets. The negative public attention on accounting fraud led Congress to quickly pass the Sarbanes-Oxley Act in 2002 to address weaknesses in internal reporting and to restore investor confidence in the financial statements issued by public companies. The press played an important role in the accounting scandal not only by serving as an information intermediary (Miller, 2006) but also by detecting a significant amount of corporate fraud (Dyck *et al*., 2010). In an analysis of fraud detection in a sample of 216 cases of alleged corporate fraud during the 1996–2004 period, Dyck *et al*. (2010) find that, contrary to conventional wisdom, corporate governance oversight bodies such as the SEC and company auditors are not the primary detectors of fraud—accounting for only seven and 10 percent of cases, respectively. Instead, they find that prominent business media (e.g., *Wall Street Journal, New York Times*, and *Business Week* play a key role in fraud detection—accounting for 13 percent in terms of the number of cases, and 24 percent in terms of the dollar value of the fines and settlements. Similarly, Miller (2006) finds that the press is an important information intermediary in providing early public dissemination of accounting fraud through both investigative reporting and the communication of information from other intermediaries.

The media plays a prominent role in corporate scandals by drawing public attention to corporate misconduct as well as by defining the public's perception of the wrongdoing. In its information intermediary role, the media can draw public attention and raise public awareness (Pollock and Rindova, 2003; Sutton and Galunic, 1996), and thus influence investor perceptions of misconduct. While academic research first unearthed the practice of backdating by finding that option grants were not randomly distributed (Lie, 2005), it was the *Wall Street Journal* that made backdating a visible scandal through its cover article (Forelle and Bandler, 2006) on the subject. As a result of media attention, for the first time investors and the public became aware that managers were manipulating the use of stock options to enrich themselves at shareholders' expense.

In its oversight role, the news media also helps construct the context within which companies, their boards, and the investing public view a firm's misconduct. It has been noted that the news media can redefine how external and internal parties perceive an event, and can even transform an event 'into a critical issue' (Hoffman and Ocasio, 2001: 414). By influencing public opinion, the news media can shape and define public perception. Research on social movements have found that media attention plays a significant role in defining public understanding, and influences whether a movement is successful in bringing about social change (Andrews and Caren, 2010). A high level of media attention, by providing a 'conduit of negative images and grievances brought by activists against the company,' can, in turn, lead to corporate action to address the situation (King, 2008: 400). In the case of backdating, media attention not only serves to increase public awareness of this practice but also helps to frame it as a deceptive practice that benefited management at the expense of shareholders. This framing raised awareness of *managerial opportunism* and resulted in a strong negative response on the part of investors (Bernile and Jarrell, 2009).

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In summary, the news media serves an important function in the backdating scandal by significantly raising public awareness of the practice and influencing public and investor perceptions of backdating as significant corporate misconduct whereby managers enrich themselves at shareholders' expense. As shown in Figure 1, media attention on backdating varied over the course of time. Researchers have found that highly publicized events, by drawing attention, can precipitate organizational action (Hoffman and Ocasio, 2001). Similarly, we argue that greater media attention on backdating, by drawing public attention and defining public perception, places greater public scrutiny on a firm implicated in backdating. As a result, the pressure on the board to respond to the firm's misconduct and restore public and investor confidence in the firm will be influenced by the extent of media attention. Thus, we propose that greater media attention on backdating at the time a firm is implicated in the scandal will increase the likelihood that the firm experiences executive turnover associated with backdating of stock options.

Hypothesis 2: The greater the *amount of media attention to backdating during the period surrounding the first news of the scrutiny of a firm's backdating, the more likely the firm will experience executive turnover*.

The moderating effects of the characteristics of the firm's backdating

We expect that the likelihood that the firm experiences executive turnover associated with backdating is a function of the social context in terms of the pervasiveness of backdating as well as the extent of media attention focused on backdating. However, not all backdating cases are identical, in that the financial and legal ramifications associated with the firm's misconduct can vary. We propose that these factors can moderate the impact of social context.

Financial ramification

As noted earlier, when backdated options are disclosed and accounted for correctly, firms generally need to recognize additional compensation expense. The additional compensation expense of the backdated options represents the cost to investors of having granted in-the-money stock options to the firm's executives. If the additional compensation expense is material, the firm will be required to restate the financial statements that were originally filed with the SEC. The financial ramifications of a firm's backdating have been found to have a large negative effect on shareholders' wealth (Bernile and Jarrell, 2009). Furthermore, financial restatements affect investor confidence in the integrity of the firm's financial practices, further eroding the firm's legitimacy (Palmrose, Richardson, and Scholz, 2004) and can lead the board to dismiss the firm's executives (Arthaud-Day *et al*., 2006; Desai *et al*., 2006).

Thus, backdating is a more serious transgression when it results in materially significant additional compensation expense and/or a restatement of the firm's earnings. We propose that the impact of a firm's position in the backdating wave will have a weaker impact on the likelihood that the firm will experience executive turnover due to backdating when there is a greater financial ramification associated with the firm's backdating. This is because when a firm's backdating has greater financial consequences, the firm's misconduct becomes harder to justify or rationalize even if backdating is pervasive. The financial ramification of the firm's backdating makes it critical for the board to hold executives responsible even if other firms have also been implicated in backdating.

Hypothesis 3: The financial ramification of a firm's backdating in terms of the additional compensation expense and/or financial restatement associated with it, weakens the negative effect of the firm's position in the backdating wave on the likelihood of executive turnover.

On the other hand, when the financial ramification of backdating is significant, the impact of media attention on the likelihood of executive turnover will be stronger. The magnitude of the financial ramification is likely to draw greater attention and scrutiny from the public and the financial community. It was, in fact, the disclosure of several egregious cases that led to the heightened visibility of backdating in the news media (e.g., Comverse Technology, Inc. and UnitedHealth). As a result, when the firm's backdating has greater financial implications, we propose that the influence of media

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attention on whether the firm will experience executive turnover due to its backdating will be greater.

Hypothesis 4: The financial ramification of a firm's backdating in terms of the additional compensation expense and/or financial restatement associated with it, strengthens the positive effect of media attention to backdating on the likelihood of executive turnover.

Legal ramification

There are also legal ramifications associated with backdating when the SEC or DOJ singles out the firm as a target of investigation. Bernile and Jarrell (2009) reported that 78 percent of firms in their sample were under SEC investigation, while 41 percent had an ongoing DOJ investigation. While a SEC investigation does not directly impact the likelihood that a firm experiences executive turnover, firms with a SEC or DOJ investigation elicit a significantly negative and larger stock market reaction to backdating than firms without a SEC or DOJ investigation (Bernile and Jarrell, 2009). The involvement of the DOJ indicates a more serious investigation, since the DOJ only becomes involved at the request of the SEC, and in response to an SEC investigation that has provided evidence of backdating. Thus, a SEC/DOJ investigation can be a credible and visible signal of the severity of the firm's backdating.

We propose that if the firm is under SEC or DOJ investigation for backdating, the pervasiveness of backdating at other firms does not discount the severity of this particular firm's transgression. As a result, the firm's position in the backdating wave will have a weaker impact on the likelihood that the firm experiences executive turnover associated with its backdating.

Hypothesis 5: The legal ramification of a firm's backdating in terms of whether there is an SEC and/or a DOJ investigation associated with it, weakens the negative effect of the firm's position in the backdating wave on the likelihood of executive turnover.

On the other hand, for firms under SEC or DOJ investigation for backdating, the impact of media attention on the likelihood of executive turnover will be stronger. Media favors stories that are dramatic and cover deviant behavior (Miller, 2006). Media attention on backdating likely cites firms that are under investigation by the SEC or DOJ for backdating, which puts the implicated firms under greater scrutiny. As a result, when the firm is under SEC and/or DOJ investigation for backdating, we propose that the influence of media attention on whether the firm experiences executive turnover due to its backdating will be greater.

Hypothesis 6: The legal ramification of a firm's backdating in terms of whether there is an SEC and/or a DOJ investigation associated with it, strengthens the positive effect of media attention to backdating on the likelihood of executive turnover.

METHODS

Sample

Our sample includes all 141 firms identified by the *Wall Street Journal* as having come under scrutiny for stock option grants and practices.[7] Some of the firms under investigation were later found not to have evidence of material backdating. However, since we could not verify the status due to ongoing investigations, we utilize the entire sample of 141 firms as listed by the *Wall Street Journal* under scrutiny for their stock option grant practices.

Dependent measure: executive turnover

Executive turnover is coded as a dummy variable equal to '1' for a firm where at least one executive or director was fired or resigned in connection with the firm's backdating investigation and '0' otherwise. For each of the firms in our sample, we identified executive resignations or firings due to backdating in the firm.[8] In our sample of 141 firms, 44 firms (approximately a third of the sample) had one or more executive and/or director turnovers

[7] Information as of 4 September, 2007, when the *Wall Street Journal* options scorecard was last updated.

[8] We utilized the *Wall Street Journal* options scorecard Web site as well as the Glass, Lewis & Co report (2007), both of which list executives and directors who left their companies due to backdating. In addition, we research *Factiva* for news of any executive and/or director departure due to backdating.

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in connection with backdating. Executive turnover typically occurred for the following executive positions: chief financial officer, general counsel, vice president, president, chief operating officer, and CEO and, in many cases, there was more than one executive/director turnover.

Explanatory measures

Firm position in the backdating wave

We created a cumulative count measure of a firm's *position in the backdating wave* by counting the number of firms that had news of scrutiny for backdating prior to the focal firm's backdating news. To create this variable, we utilized the date when each firm was first identified in the news as being under scrutiny for backdating. Figure 1 provides a distribution of the first news dates for the 141 firms by month from January 2006–July 2007, and by year for the four firms that precede 2006.

Media attention to backdating

We researched media attention on backdating and identified 1,300 articles published in nine prominent media outlets during the 2005–2007 period.[9] To measure media attention on backdating, we counted the number of articles over a 31 day period surrounding the date when each firm was first identified in the news as being under scrutiny (+15, −15 days). This variable ranges between 0 and 151 with a mean of 75 and a standard deviation of 32.

Additional compensation expense

The amount of *additional compensation expense* (in millions of U.S. dollars) that the firm should have recorded in prior years in connection with its historical stock option grants is the pre-tax additional compensation expense of a firm's backdating.[10] For firms where it was concluded that no backdating actually transpired, or where the amount was not material and therefore did not require a disclosure, the variable *additional compensation expense* has a value of '0'.[11]

Financial restatement

Financial restatement is a dummy variable coded as '1' if a firm restates its previous financial statements as a result of backdating and '0' otherwise. For our sample, 94 firms (66.7% of the sample) had financial restatements associated with backdating. Data on whether a firm had a financial restatement was gathered from Glass, Lewis & Co.'s (2007) report and confirmed with SEC releases on restatements.

SEC investigation

SEC investigation is a dummy variable coded as '1' if a firm is under investigation for backdating by the SEC and '0' otherwise. Information on this variable was gathered from the *Wall Street Journal* options scorecard and Glass, Lewis & Co.'s (2007) report and was confirmed with news releases. For our sample, 112 firms (79.4% of the sample) were under SEC investigation.

DOJ investigation

DOJ investigation is a dummy variable coded as '1' if a firm is under investigation for backdating by the DOJ and '0' otherwise. Information on this variable was gathered from the *Wall Street Journal* options scorecard and Glass, Lewis & Co.'s (2007) report and was confirmed with news releases. For our sample, 63 firms (44.7% of the sample) were under DOJ investigation.

Controls

In order to account for alternative explanations of executive turnover, we controlled for certain firm characteristics as well as characteristics of the CEO and board. Data for the control variables was collected from Glass, Lewis & Co's (2007) report, COMPUSTAT, CRSP, 10K reports, proxy statements, and the RiskMetrics database.

Firm size

Larger firms, by virtue of their more extensive shareholdings, are more closely scrutinized by the financial community and thus may face stronger pressure to dismiss either an executive or a director if the firm has backdated stock options. Firm size is measured by the log of a firm's market capitalization on the date of the first news of backdating.

[9] The distribution of articles by prominent media outlets is available from the authors, upon request.

[10] This measure was log transformed.

[11] We also calculated adjusted additional compensation expense, which is the ratio of a firm's additional compensation expense divided by the firm's market capitalization.

Firm financial performance

To account for the possible effect of firm performance on executive turnover, we control for both accounting and stock market measures of prior firm performance. Industry-adjusted return on assets (ROA) is measured as a firm's ROA in the year prior to the year in which the firm was being scrutinized for backdating minus the median firm ROA (excluding the focal firm) in the firm's core industry. Industry-adjusted stock return is measured by the firm's total return to shareholders in the prior year minus the median stock return (excluding the focal firm) of firms in the focal firm's core industry.

Stock market reaction

It has been shown that the stock market reacts negatively to news that the firm is under investigation for backdating (Bernile and Jarrell, 2009), which may result in stronger pressure to hold executives accountable for the backdating activity. To control for this possibility, we include the stock market reaction (i.e., the abnormal return) to the first news of scrutiny into backdating at the firm. We control for the stock market reaction to news of potential backdating by using the firm's abnormal return over an 11 day (−5, +5) event window.[12] The average abnormal return of firms in our sample is 3.93 percent.

CEO characteristics

We control for CEO duality, tenure, and stock ownership, since these measures are indicators of CEO power that may affect the likelihood of executive turnover. CEO duality is coded as '1' if the CEO and the board chairman positions are combined and '0' otherwise. CEO tenure is measured by the number of years the CEO has been in the position. CEO stock ownership is measured as the percentage of the firm's outstanding shares held by the CEO.

Board characteristics

We also control for board size (the number of directors on the board) and the composition of the board in terms of the percentage of outside directors (the proportion of outside directors on the board) and their stock ownership (the percentage of the firm's outstanding shares held by the outside directors on the board). It has been inferred that greater board size would lessen the power of the board while a greater proportion of the board as outside directors and greater stock ownership by outside directors would align the board with the firm's shareholders, thus resulting in a board that is more likely to hold executives accountable for actions that negatively impact shareholder wealth.

Data analyses

In this study, we examine how a firm's position in the backdating wave and the amount of media attention on backdating may affect the likelihood that the firm experiences executive turnover due to its backdating. A major concern with such an empirical examination is the potential endogeneity of a firm's position in the backdating wave, which could be affected by some important attributes of the firm. To address this problem, we follow the approach used by Yu (2008) to capture the variations in a firm's position in the backdating wave that are exogenous to the firm's attributes. First, we estimate the following model for firm position in the backdating wave:

$$\begin{aligned}\text{Firm position in the backdating wave} &= \text{book value of assets} \\ &+ \text{market to book value ratio} \\ &+ \text{number of years as a publicly listed firm} \\ &+ \text{stock return volatility} \\ &+ \text{technology firm} \\ &+ \text{additional compensation expense} \\ &+ \text{monthly backdating implication frequency} \\ &+ \text{CEO stock ownership} \\ &+ \text{outside director stock ownership} \qquad (1)\end{aligned}$$

Book value of assets (log), market to book value ratio, and number of years as a publicly listed firm are included in the model because larger, more established firms are less likely to backdate options (Heron and Lie, 2009). Stock return volatility and technology firm are included

[12] The use of different event windows for the abnormal return did not affect the results of other explanatory variables.

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because firms with these characteristics are more likely to backdate options (Heron and Lie, 2009). Additional compensation expense is included since firms that have earlier news releases may have a larger value of backdated options. Since the first news of scrutiny into stock option grant practices for the firms in our sample is unevenly distributed over time, we also include the variable *monthly backdating frequency*. We include CEO stock ownership and outside director stock ownership in the model.

To test our hypotheses, we use the residuals from this model as proxies for firm position in the backdating wave.[13] The residuals can be considered as a component of firm position in the backdating wave that is uncorrelated with the predictors included in Equation 1. This approach removes potential endogeneity between a firm's position in the backdating wave and the factors that are likely to influence when the firm was first identified in the news as being under scrutiny for backdating.

In addition to the concern over endogeneity, firms identified by the *Wall Street Journal* as under scrutiny for backdating may be different from firms not identified by the *Wall Street Journal*. This raises the issue of whether or not we have sample selection bias (Heckman, 1979). To address this issue, we selected a control sample of 141 firms to match our sample based upon industry membership and firm size (Arthaud-Day *et al*., 2006). We ran a Heckman selection model to predict the likelihood that a firm was identified by the *Wall Street Journal* using stock return volatility, profitability (ROA), market to book value ratio, having a Big Five auditing firm, and number of years as a publicly listed firm. Our results show that the coefficient for profitability (ROA) is significantly negative and that for Big Five auditing firms is significantly positive—suggesting that more profitable firms were less likely and firms that did not use a Big Five auditing firm were more likely to be identified by the *Wall Street Journal* in their options scorecard.[14] From this analysis, we calculate the inverse Mills ratio, which we then use as a control variable in our models predicting the probability of executive turnover.

[13] The results of estimating the model (Equation 1) are not reported in the paper, but are available from the authors upon request.

[14] These results are not reported in the paper but are available from the authors upon request.

RESULTS

Table 1 presents descriptive statistics and correlations for the variables we use in our analysis. Table 2 reports the results predicting the probability of executive turnover in connection with a firm's backdating. The chi-square statistic of the models including the hypothesized effects (Models 2–6b) indicates strong significance ($p < 0.001$). The pseudo r-square measure of these models ranges from 0.50 to 0.56. Thus, these models have good predictive ability for executive turnover in connection with backdating.

Model 1 in Table 2 provides the base model of control variables only. Model 2 includes the main effects of firm position in the backdating wave, media attention to backdating, and the four moderators—additional compensation expense, financial restatement, SEC investigation, and DOJ investigation. The results of Model 2 show that the coefficient for firm position in the backdating wave is negative and significant ($b = -0.05$, $p < 0.01$, marginal effect is -0.005, $p < 0.01$). These findings support Hypothesis 1, which proposes that the likelihood that a firm experiences executive turnover due to its stock option backdating is negatively related to the position of the firm's first news on backdating scrutiny in the backdating wave.

The results of Model 2 show that the coefficient for media attention to backdating is positive and significant ($b = 0.04$, $p < 0.05$; marginal effect is 0.004, $p < 0.05$). These findings support Hypothesis 2, which proposes that the likelihood that a firm experiences executive turnover due to its backdating is positively related to the amount of media attention to backdating during the period surrounding the first news of scrutiny of the firm's backdating.

Hypothesis 3 proposes that the financial ramification of a firm's backdating in terms of the additional compensation expense and/or financial restatement associated with it, weakens the negative effect of the firm's position in the backdating wave on the likelihood of executive turnover. To test this hypothesis, we add an interaction term that is the product of a firm's position in the backdating wave and additional compensation expense (both variables were mean-centered). As shown in Model 3a, the coefficient for this interaction term is positive and only marginally significant

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Table 1. Descriptive statistics and correlations[a]

Variables	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Executive turnover	0.33	0.47	-															
2. Firm position in the backdating wave	70.00	41.51	−0.33	-														
3. Media attention to backdating	74.85	31.61	−0.24	0.74	-													
4. Additional compensation expense	3.08	1.87	0.044	−0.24	−0.17	-												
5. Financial restatement	0.67	0.47	0.46	−0.17	−0.17	0.55	-											
6. SEC investigation	0.80	0.40	0.19	−0.28	−0.12	0.19	0.29	-										
7. DOJ investigation	0.45	0.50	0.38	−0.49	−0.38	0.26	0.12	0.38	-									
8. Firm size	7.42	1.48	0.15	−0.20	−0.08	0.31	−0.12	0.20	0.36	-								
9. Industry-adjusted ROA	0.03	0.10	0.02	0.05	0.05	0.01	−0.01	0.05	0.09	0.36	-							
10. Industry-adjusted stock return	0.18	0.47	0.05	−0.09	−0.07	−0.05	0.04	0.08	0.13	−0.06	−0.03	-						
11. Stock market reaction	−0.04	0.09	−0.18	0.10	0.06	−0.05	0.00	−0.13	−0.08	0.08	−0.07	−0.01	-					
12. CEO duality	0.53	0.47	−0.01	0.00	0.07	0.03	0.07	0.01	−0.13	0.03	0.02	0.01	0.01	-				
13. CEO tenure	9.52	7.45	0.14	0.07	0.01	0.03	0.18	0.06	−0.10	0.01	0.05	0.05	0.04	0.39	-			
14. CEO stock ownership	0.05	0.08	0.01	0.14	0.15	−0.02	0.06	−0.02	−0.16	−0.23	0.00	−0.07	−0.08	0.25	0.27	-		
15. Board size	7.92	2.17	0.03	0.16	0.08	−0.01	−0.21	−0.09	0.10	0.42	0.00	−0.09	0.12	−0.09	−0.04	−0.21	-	
16. Outside director percentage	0.75	0.13	−0.07	−0.11	−0.06	0.12	−0.02	0.06	0.04	0.19	0.02	−0.04	−0.01	0.25	−0.01	−0.05	−0.03	-
17. Outside director stock ownership	0.02	0.04	−0.09	0.13	−0.02	−0.02	−0.05	−0.17	−0.07	−0.07	−0.08	−0.05	−0.13	−0.10	−0.12	0.00	0.10	0.11

N=141.

[a] Correlations larger than 0.17 are significant at the level of $p < 0.05$.

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Table 2. Logistic regression results for the probability of executive turnover

Variables	Model 1	Model 2	Model 3a	Model 3b	Model 4a	Model 4b	Model 5a	Model 5b	Model 6a	Model 6b
Constant	−0.84	−11.64**	−13.90**	−341.05	−11.86**	−9.07*	−15.57**	−14.44**	−8.34*	−11.76**
	(2.12)	(3.93)	(4.42)	(−−-)[a]	(3.40)	(4.18)	(5.32)	(4.70)	(4.22)	(4.05)
Controls										
Firm size	0.36*	0.31	0.28	0.34	0.29	0.27	0.26	0.32	0.32	0.36
	(0.17)	(0.29)	(0.30)	(0.30)	(0.30)	(0.29)	(0.31)	(0.32)	(0.30)	(0.30)
Industry-adjusted ROA	−1.91	−0.88	−1.11	−1.55	−1.06	−1.04	−0.84	−1.22	−0.49	−1.02
	(2.04)	(2.92)	(2.94)	(3.14)	(2.93)	(2.99)	(3.17)	(3.03)	(3.04)	(3.01)
Industry-adjusted stock return	0.14	−0.50	−0.52	−0.59	−0.51	−0.50	−0.60	−0.55	−0.57	−0.56
	(0.39)	(0.54)	(0.55)	(0.56)	(0.55)	(0.55)	(0.56)	(0.52)	(0.56)	(0.53)
Stock market reaction	−5.52*	−12.16**	−12.67**	−13.47**	−12.35**	−12.45**	−12.74**	−12.03**	−13.48***	−11.64**
	(2.23)	(3.99)	(4.13)	(4.36)	(4.09)	(4.12)	(4.27)	(3.97)	(4.24)	(3.91)
CEO duality	−0.35	−0.37	−0.42	−0.45	−0.38	−0.35	−0.39	−0.31	−0.49	−0.37
	(0.49)	(0.70)	(0.70)	(0.73)	(0.69)	(0.70)	(0.73)	(0.76)	(0.73)	(0.71)
CEO tenure	0.05†	0.10*	0.11*	0.11*	0.10*	0.11*	0.12*	0.13*	0.12*	0.11*
	(0.03)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
CEO stock ownership	0.66	−2.90	−3.26	−1.86	−3.08	−3.06	−3.50	−4.43	−2.56	−3.07
	(2.52)	(3.35)	(3.38)	(3.44)	(3.37)	(3.39)	(3.57)	(3.64)	(3.51)	(3.42)
Board size	−0.06	0.24	0.27	0.25	0.25	0.25	0.23	0.23	0.23	0.22
	(0.10)	(0.18)	(0.19)	(0.19)	(0.18)	(0.18)	(0.19)	(0.20)	(0.18)	(0.18)
Outside director percentage	−1.47	−2.41	−2.15	−0.79	−2.24	−2.13	−0.87	−2.55	−0.68	−2.03
	(1.62)	(2.68)	(2.73)	(2.73)	(2.70)	(2.67)	(2.71)	(2.80)	(2.76)	(2.68)
Outside director stock ownership	−8.11	−21.28†	−24.37†	−19.27	−23.43†	−20.46	−17.33	−13.07	−21.46	−18.91
	(7.11)	(12.96)	(13.34)	(13.71)	(13.21)	(13.12)	(14.00)	(13.33)	(13.56)	(13.28)
Inverse Mills ratio	−1.85	−1.35	−1.38	−1.69	−1.36	−1.24	−1.96	−1.00	−0.67	−1.34
	(1.50)	(2.35)	(2.47)	(2.49)	(2.39)	(2.42)	(2.53)	(2.56)	(2.45)	(2.40)
Predictors										
Firm position in the backdating wave (residual)		−0.05**	−0.07**	-	−0.06**	−0.05**	-	-	−0.06**	−0.06**
		(0.02)	(0.02)		(0.02)	(0.02)			(0.02)	(0.02)
Media attention to backdating		0.04*	0.04*	0.04*	0.04*	-	0.04*	0.05*	-	-
		(0.02)	(0.02)	(0.02)	(0.02)		(0.02)	(0.02)		
Additional compensation expense		0.43†	0.65*	0.40	0.54*	0.53*	0.49†	0.49†	0.47†	0.44†
		(0.25)	(0.30)	(0.28)	(0.28)	(0.27)	(0.29)	(0.29)	(0.28)	(0.27)
Financial restatement		5.12***	6.39**	332.84***	5.46***	1.79	8.51*	6.36***	6.20***	5.69***
		(1.49)	(2.06)	(3.67)	(1.65)	(2.39)	(3.86)	(1.90)	(1.86)	(1.63)
SEC investigation		−1.54	−1.79†	−1.29	−1.69†	−1.61	−2.03	−1.56	−2.28*	−1.63†
		(0.95)	(1.04)	(1.07)	(0.99)	(1.01)	(1.27)	(1.09)	(1.17)	(1.00)

Table 2. *(Continued)*

Variables	Model 1	Model 2	Model 3a	Model 3b	Model 4a	Model 4b	Model 5a	Model 5b	Model 6a	Model 6b
DOJ investigation		2.38**	2.32**	2.65***	2.33**	2.52**	2.65***	2.79**	2.72***	−0.13
		(0.77)	(0.80)	(0.82)	(0.77)	(0.81)	(0.82)	(0.92)	(0.83)	(1.69)
Firm position in the backdating wave * additional compensation expense			1.22E-2† (6.64E-3)							
Firm position in the backdating wave with financial restatement (A1)				−0.05* (0.02)						
Firm position in the backdating wave without financial restatement (A2)				−4.02 (6.53)						
Media attention to backdating * additional compensation expense					0.01 (0.01)					
Media attention to backdating with financial restatement (B1)						0.04* (0.02)				
Media attention to backdating without financial restatement (B2)						−0.01 (0.04)				
Firm position in the backdating wave with SEC investigation (C1)							−0.05* (0.02)			
Firm position in the backdating wave without SEC investigation (C2)							−0.15** (0.05)			
Firm position in the backdating wave with DOJ investigation (D1)								−0.04* (0.02)		
Firm position in the backdating wave without DOJ investigation (D2)								−0.11*** (0.03)		

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Table 2. *(Continued)*

Variables	Model 1	Model 2	Model 3a	Model 3b	Model 4a	Model 4b	Model 5a	Model 5b	Model 6a	Model 6b
Media attention to backdating with SEC investigation (E1)									0.05** (0.02)	
Media attention to backdating without SEC investigation (E2)									−0.04 (0.04)	
Media attention to backdating with DOJ investigation (F1)										0.06** (0.02)
Media attention to backdating without DOJ investigation (F2)										0.03 (0.02)
Log likelihood	−80.52	−44.78	−42.88	−40.29	−44.25	−43.41	−39.75	−39.89	−41.54	−43.28
Pseudo R^2	0.10	0.50	0.52	0.55	0.51	0.52	0.56	0.56	0.54	0.52
Model chi-square	18.46†	89.93***	93.74***	98.92***	90.99***	92.68***	100.00***	99.72***	96.42***	92.93***
Chi-square test for comparing	-	-	-	A1 vs. A2	-	B1 vs. B2	C1 vs. C2	D1 vs. D2	E1 vs. E2	F1 vs. F2
Coefficients				0.37		1.85	4.39*	7.86**	4.90*	2.68†

N=141. † $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ (two-tailed tests).
[a] Stata cannot produce standard error for the constant of this model.

(b = −1.22E-2, $p < 0.1$).[15] To examine the moderating effect of whether the firm had a financial restatement due to backdating, we split the variable *firm position in the backdating wave* into two variables: *firm position in the backdating wave with financial restatement* captures the value of *firm position in the backdating wave* if there is a financial restatement and has a value of '0' if there is no financial restatement; *firm position in the backdating wave without financial restatement* captures the value of *firm position in the backdating wave* if there is no financial restatement and has a value of '0' if there is a financial restatement. These two variables are included in Model 3b[16] (*firm position in the backdating wave* is dropped). We further examine whether the coefficients for these two variables are statistically different using the Wald chi-square test statistic. The results of Model 3b show that the coefficient for *firm position in the backdating wave with financial restatement* is negative and significant (b = −0.05, $p < 0.05$) and that for *firm position in the backdating wave without financial restatement* is not significant. The Wald chi-square test statistic indicates that these two coefficients are not significantly different (chi-square = 0.37, n.s.). Given these results, Hypothesis 3 receives very limited support.

Hypothesis 4 proposes that the financial ramification of a firm's backdating in terms of the additional compensation expense and/or financial restatement associated with it, strengthens the positive effect of media attention to backdating on the likelihood of executive. To test this hypothesis, we examine the interaction of media attention with additional compensation expense. As shown in Model 4a the coefficient of the interaction term of media attention to backdating and additional compensation expense (mean-centered) is not significant (b = 0.001, n.s.).[17] To examine the moderating effect of whether the firm had a financial restatement, we split the variable *media attention to backdating* into two variables: *media attention to backdating with financial restatement* and *media attention to backdating without financial restatement* and included them in Model 4b

[15] The interaction with adjusted additional compensation expense is not significant.

[16] This method is equivalent to adding the interaction term of *firm position in the backdating wave* and *financial restatement* to the model, but produces results that are easier to interpret.

[17] The interaction with adjusted additional compensation expense is also not significant.

(*media attention to backdating* is dropped). The results of Model 4b show that the coefficient for *media attention to backdating with financial restatement* is positive and significant ($b = 0.04$, $p < 0.05$) and that for *media attention to backdating without financial restatement* is not significant. The Wald chi-square test statistic indicates that these two coefficients are not significantly different (chi-square = 1.85, n.s.). Given these results, Hypothesis 4 is not supported.

Hypothesis 5 proposes that the legal ramification of a firm's backdating in terms of whether there is an SEC and/or a DOJ investigation associated with it, weakens the negative effect of the firm's position in the backdating wave on the likelihood of executive turnover. To test this hypothesis, we examine the moderating effect of an SEC and DOJ investigation separately. First, we split *firm position in the backdating wave* into two variables: *firm position in the backdating wave with SEC investigation* and *firm position in the backdating wave without SEC investigation* and include them in Model 5a. The results of Model 5a show that the coefficient for *firm position in the backdating wave with SEC investigation* is significantly negative ($b = -0.05$, $p < 0.05$) and that for *firm position in the backdating wave without SEC investigation* is also significantly negative ($b = -0.15$, $p < 0.01$). The Wald chi-square test statistic indicates that these two coefficients are significantly different (chi-square = 4.39, $p < 0.05$).

To examine the moderating effect of DOJ investigation, we split *firm position in the backdating wave* into two variables: *firm position in the backdating wave with DOJ investigation* and *firm position in the backdating wave without DOJ investigation* and include them in Model 5b. The results of Model 5b show that the coefficient for *firm position in the backdating wave with DOJ investigation* is significantly negative ($b = -0.04$, $p < 0.05$) and that for *firm position in the backdating wave without DOJ investigation* is also significantly negative ($b = -0.11$, $p < 0.001$). The Wald chi-square test statistic indicates that these two coefficients are significantly different (chi-square = 7.86, $p < 0.01$). Given these results, Hypothesis 5 is supported.

Hypothesis 6 proposes that the legal ramification of a firm's backdating in terms of whether there is an SEC and/or a DOJ investigation associated with it, strengthens the positive effect of media attention to backdating on the likelihood of executive turnover. To test this hypothesis, we examine the moderating effect of an SEC and a DOJ investigation separately. First, we split *media attention to backdating* into two variables: *media attention to backdating with SEC investigation* and *media attention to backdating without SEC investigation* and include them in Model 6a. The results of Model 6a show that the coefficient for *media attention to backdating with SEC investigation* is significantly positive ($b = 0.05$, $p < 0.01$) and that for *media attention to backdating without SEC investigation* is not significant ($b = -0.04$, n.s.). The Wald chi-square test statistic indicates that these two coefficients are significantly different (chi-square = 4.90, $p < 0.05$).

To examine the moderating effect of a DOJ investigation, we split *media attention to backdating* into two variables: *media attention to backdating with DOJ investigation* and *media attention to backdating without DOJ investigation* and include them in Model 6b. The results of Model 6b show that the coefficient for *media attention to backdating with DOJ investigation* is significantly positive ($b = 0.06$, $p < 0.01$) and that for *media attention to backdating without DOJ investigation* is not significant ($b = 0.03$, n.s.). The Wald chi-square test statistic indicates that the difference of these two coefficients is marginally significant (chi-square = 2.68, $p < 0.1$). Given these results, Hypothesis 6 is supported.

DISCUSSION AND CONCLUSION

This study was motivated by the desire to better understand how boards respond to corporate misconduct. Prior research has found that corporate misconduct leads to the stigmatization of the firm and its leaders and that the firm tends to replace its leaders in order to repair damage to its legitimacy (Arthaud-Day *et al*., 2006; Desai *et al*., 2006; Srinivasan, 2005). In addition, research has shown that the severity of the misconduct is likely to influence whether the board holds an executive responsible for financial fraud (Srinivasan, 2005). These studies utilize the existence and severity of the firm's financial fraud to examine whether the board takes action to remove executives responsible; however, we know little about the role of the broader social context in influencing the board's response to corporate misconduct.

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Our study contributes to the literature on corporate misconduct by examining the role of social context in influencing a board's response to its firm's misconduct. In examining the effects of social context, we acknowledge that the nature of some corporate misconduct may be 'murky' in terms of whether or not a practice is illegal. Despite the widespread adoption of stock option pay, the reporting of stock option grants has not been uniform.[18] Backdating is legal when the firm properly accounts for granting in-the-money stock options in its financial statements, and discloses the issuance of the grants to the SEC in a timely fashion. Due to its 'murky' nature, there is uncertainty regarding the severity of the misconduct and the extent of damage to the firm's reputation and legitimacy. This ambiguity makes it difficult for the board to decide on a course of action in response to the firm's backdating; thus, the board is likely to look to the social context surrounding the firm at the time of its implication in the backdating scandal. Social context matters because it affects how the misconduct is perceived by external and internal constituents, which, in turn, will influence how the board responds to the misconduct.

Our focus on the role of social context not only adds to our understanding of the board's response to corporate misconduct but also sheds light on the potential influence of social context on executive dismissal. Indeed, most studies on executive turnover have focused on factors internal to the firm, such as poor financial performance (e.g., Boeker, 1992; Coughlan and Schmidt, 1985; Shen and Cannella, 2002; Zhang, 2006) and politics and power (e.g., Boeker, 1992; Ocasio, 1994; Shen and Cannella, 2002; Zhang, 2006). It has been implicitly assumed that in deciding whether to dismiss a firm's executive, it is the firm's *specific* conditions that the board takes into account. The possibility that executive dismissal is influenced by the broader social context has not been examined. Thus, our focus on the role of social context can contribute not only to a better understanding of how the board responds to corporate misconduct but also provides a richer understanding of the broader set of antecedents that are likely to be responsible for executive dismissal.

More specifically, drawing upon March's (1994) 'logic of appropriateness,' we propose that the pervasiveness of a specific type of corporate misconduct can influence how the board responds to corporate misconduct. As more firms are implicated, backdating is perceived as 'less inappropriate' and justifiable; therefore the board becomes less likely to respond to managerial misconduct. We find evidence that the firm's social context in terms of the pervasiveness of backdating influences the board's response; in that firms implicated later in the backdating wave are less likely to experience executive turnover associated with its backdating than those implicated earlier.

The firm's social context is influenced not only by the pervasiveness of the behavior but also by the media attention on the misconduct. The press generates awareness and influences meaning by shaping how the public and investors perceive the practice of backdating stock options. As a result, the news media is influential in shaping the social context within which companies, their boards, and the investing public view a firm's misconduct. Media attention on backdating has been considerable because of widespread corporate involvement, and the perception that it constituted 'stealth compensation' whereby executives rewarded themselves by manipulating the timing of stock option grants (Heron and Lie, 2007; Lie, 2005). Our study's findings indicate that greater media attention to backdating at the time a firm is implicated in the scandal significantly increases the likelihood that the firm experiences executive turnover associated with backdating.

Thus, our study provides evidence that social context, in terms of the pervasiveness of the misconduct and media attention to backdating, have divergent influences on the likelihood that the board will respond to corporate misconduct. Our findings indicate that the pervasiveness of the misconduct serves to diminish the likelihood that the board will take action, while greater media attention increases the pressure on the board to take action. As shown in Figure 1, the distribution of media attention to backdating and the timing of firm backdating implications do not occur concurrently. Backdating implications predominantly occur from May to August of 2006,

[18] Prior to the passage of the Sarbanes-Oxley Act in 2002, firms could either file Form 4 within 10 business days or alternatively file Form 5 within 45 days of fiscal year-end with the SEC. Prior to the adoption of FASB 123 in 2004, which mandated expensing of stock option pay, there was also considerable debate over whether firms should even be mandated to expense stock option pay.

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while media attention to the backdating scandal peaks later in October 2006, with over 180 articles appearing in prominent media outlets. As a result, our findings that the board is more likely to respond in the early stage of the backdating wave is not driven by the intensity of media attention; likewise the lower likelihood of executive turnover in the later stage of the backdating wave is not due to diminished media attention. Thus, we are confident that each of these dimensions of social context—pervasiveness of backdating and media attention—has a significant and distinct impact on the board's response to corporate misconduct.

In addition to the influence of pervasiveness and media attention, we also investigate whether the financial and legal ramifications of the firm's misconduct are likely to moderate the influence of social context on the board's response to corporate misconduct. Our findings indicate that the financial ramification in terms of additional compensation expense and/or the need for financial restatement as a result of a firm's backdating is not a significant moderator. In contrast, we find strong and consistent support for the moderating role of the legal ramification of a firm's backdating. Specifically, when the firm is under SEC/DOJ investigation, the effect of pervasiveness is reduced, but still matters. Similarly, we find that media attention has a stronger influence on whether the board responds when the firm is under SEC/DOJ investigation, whereas media attention is not a significant factor on how the board responds when the firm is not under investigation. Since the press predominantly focuses on high profile cases of backdating in which the SEC and/or the DOJ are likely to be involved, the board of a firm under such investigation is more likely to be influenced by media attention.

Limitations and future research directions

Although this study contributes significantly to our understanding of a board's response to corporate misconduct, the study also has limitations that represent fruitful directions for further research. First, in examining social context, we focus on only two dimensions: the pervasiveness of misconduct and the media attention to misconduct. However, there may be other dimensions of social context that may also influence how a board responds to corporate misconduct. Recent research has indicated that boards of firms with greater analyst coverage are more likely to dismiss executives associated with accounting fraud (Cowen and Marcel, 2011). Investment analysts serve as important information intermediaries in the investment community and may also be an important dimension of the firm's social context. Analyst ratings have been shown to influence a board's decision to dismiss the CEO (Wiersema and Zhang, 2011), and thus comprise an important factor in understanding how the board may respond to corporate misconduct.

In addition, the pressure on a board to respond to corporate misconduct comes from multiple external forces such as investors, the SEC, the DOJ, the public, and the press. These parties act simultaneously and over time to influence the social context surrounding corporate misconduct. This study examines the effect these external forces have on the likelihood of executive turnover associated with backdating by incorporating the direct impact of media attention and the moderating effects of SEC and DOJ investigations, while controlling for the effect of the stock market's reaction. However, this study does not examine how these forces may jointly influence each other over time, which represents an interesting question for future research. Lastly, while we examine whether the severity of the firm's backdating in terms of its financial and legal ramifications may moderate the influence of social context, there may be other potential moderators. Prior research has proposed that firms with higher status may be less subject to the impact of informal social forces (Pfarrer *et al*., 2008).

In conclusion, our study is the first to examine the role of social context in how a board responds to corporate misconduct. Thus, while prior research has shown that the board is likely to replace the firm's executives to repair damage to the firm's reputation and legitimacy due to misconduct, our study highlights the importance of social context surrounding corporate misconduct. Our findings provide strong evidence that both the pervasiveness of and media attention to backdating have important impacts on the likelihood that a firm experiences executive turnover. We also find that the impact of social context is contingent upon the characteristics of the firm's backdating, particularly the legal ramification. Overall, our findings suggest that in order to fully understand how a board responds to corporate misconduct, both the social context surrounding the firm's misconduct

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and the characteristics associated with misconduct need to be taken into account.

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