SHOULD SIZE MATTER WHEN REGULATING FIRMS?
IMPLICATIONS FROM BACKDATING OF EXECUTIVE OPTIONS†

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INTRODUCTION .............................................. 2
I. WHERE SIZE MATTERS ......................................... 5
   A. Social Welfare: Exemptions from Regulation .... 5
   B. Investigations, Prosecutions, and Sentencing .... 8
      1. SEC Investigations and Prosecutions ....... 9
      2. Investigations of the Environmental Protection Agency ............... 10
      3. Proliferation of Deferred and Non-Prosecution Agreements ............ 10
      4. Sentencing ................................... 14
II. THE MORAL HAZARD: INFLUENCES ON THE DECISION OF WHETHER TO PROSECUTE ......................... 15
   A. Incentives to Investigation and Prosecution: Winning and Career .................. 18
   B. Politics, Public, and Agents .......................... 21
III. EMPIRICAL STUDY—BACKDATING ............................. 23
   A. An Overview of Stock Options Backdating .......... 25
   B. Data and Variables .................................. 28

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INTRODUCTION

There are numerous instances where small firms have been granted exemptions from regulatory restrictions.¹ The major justification offered by the proponents of this exemption for small firms is the claim that regulation has a disproportionate effect on these companies.² For example, in the area of securities law, regulation of small firms has drawn criticism throughout the years.³ It has been lamented that the U.S. Securities and Exchange Commission (SEC) has “never . . . understood small businesses, their capital needs, their importance to our economy, and the special circumstance they face . . . .”⁴ Similarly, since its enactment, the Sarbanes-Oxley Act of 2002 (SOX)⁵ has been highly criticized because efforts to comply with the legislation’s requirements impose great expense on firms.⁶

³. See, e.g., C. Steven Bradford, Does Size Matter? An Economic Analysis of Small Business Exemptions from Regulation, 8 J. SMALL & EMERGING BUS. L. 1, 4 (2004); Campbell Jr., supra note 2, at 85–86 (explaining the economic importance of small businesses to the national economy); Joseph Castelluccio, III, Sarbanes-Oxley and Small Business: Section 404 and the Case for a Small Business Exemption, 71 BROOKLYN L. REV. 429, 444 (2005) (“In the case of small businesses, the relative costs of compliance with federal regulations can be disproportionately high . . . .”); Huffman, supra note 2, at 316 (arguing that the centralized “one-size-fits-all approach” since the New Deal has created disproportionately burdensome effects on small and emerging businesses).
⁴. Campbell Jr., supra note 2, at 80.
In order to decide if regulation should be lenient towards small firms, we need to first understand whether small firms are less likely, equally likely, or even more likely to engage in illegal behavior. Without answering this question, any discussion that is focused solely on the costs of complying with SOX requirements misses the point. If, for example, the empirical evidence shows that small firms are in fact more likely to engage in illegal behavior, then even if the firm’s costs of compliance may be higher, societal benefits from imposing reporting requirements on small firms would also be greater. In this case, it would be unwise to grant blanket exemptions to small firms. Therefore, it is important to understand whether size should matter in regulatory policy decisions.

Policymakers, however, face an unavoidable endogeneity problem when addressing the question of optimal regulation. First, if certain groups of firms are not carefully scrutinized, we cannot be certain that they are abiding by the regulations. Second, if small firms are statutorily excluded from regulatory compliance, it is quite possible that exclusion would lead to socially harmful actions by these firms. These actions would likely not be detected because they would not be covered by regulations and therefore would not be reported. Third, regulatory authorities may systematically target large and visible firms either due to the perceived greater deterrent value or a greater chance of financial recovery. Finally, regulatory authorities may also pursue larger firms to further their personal career prospects, even if these targets do not provide the best chance of recovery or the most deterrent value. Thus policymakers would be advised to exercise caution.
before relying on prosecutions or investigations to decide which types of firms are engaging in illicit activity and are thus worthy of regulation or investigation. Although this endogeneity problem is easy to understand, it is difficult to document. After all, we typically do not know if certain firms are violating a statute unless they are caught doing it.

This paper provides a data point relevant to this policy discussion by using the options backdating context\(^8\) to circumvent the endogeneity issue discussed above. The backdating scenario provides a unique opportunity to predict which firms are likely to have engaged in illegal backdating activity. By examining the timing of option grants and the stock price patterns, we can compute a statistical likelihood of backdating, regardless of whether a firm is identified as a possible back-dater. In most circumstances, ascertaining this kind of ex-ante likelihood of engaging in an illicit activity is impossible. Typically, there is some suspicion of illicit activity, which leads to an investigation, which is then followed by resolution. If there is no investigation, there can be no estimate of the probability of the illicit activity. With options backdating, however, we can establish the likelihood that a firm is engaging in illicit activity independent of whether the firm is ever investigated. We can then compare the size of firms likely to have engaged in the illicit activity with the general population of firms to determine if smaller firms are overrepresented in the illicit activity sample.

We find that it is indeed the case that smaller firms are overrepresented in the sample. We then compare the size of firms in the illicit activity sample with the size of firms that were investigated, while holding constant other determinants of likely options backdating. Here, we find firms that were investigated for engaging in illicit options backdating practices are likely to be, on average, larger compared to firms that have been engaging in options backdating but were not investigated. This finding suggests that prosecutorial motives might be driving the types of firms that are being subjected to investigations, which implies that policy decisions regarding the type of firms to regulate should not be based on observed investigations or prosecutions. Our results therefore raise significant implications for the public policy debate on the level of regulation that should apply to smaller firms.

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\(^8\) See definition and discussion of the practice of options backdating, infra Part III.A.
To address these issues, this paper is organized as follows. Part I reviews legislative examples where, by statute or enforcement, firms that do not meet minimum size requirements appear to be exonerated from compliance with regulation. Questions of the moral hazard of prosecutorial influences and discretion are raised in Part II, with consideration of how federal prosecutors appear to select cases worthy of investigation. Part III then empirically analyzes the backdating investigations to shed light on whether it seems that, as a matter of public policy, prosecutors and legislators are seeking out the likely offenders for investigation. Concluding remarks follow.

I. WHERE SIZE MATTERS

Numerous exemptions from federal regulations exist for small businesses. These exemptions take varied forms, from releasing the business entity from just a single regulatory requirement to releasing it from most or all of the regulatory framework.9 Measurements of firm size also vary, and can include size of assets, number of employees, and number of clients.10 In addition, there are also circumstances where, although firms are not exempted from regulation due to size, size appears to impact whether the firm finds itself the subject of investigation or prosecution.

A. Social Welfare: Exemptions from Regulation

This Part examines a few areas where small firms appear to enjoy exemptions from regulation, either directly or indirectly. Presumably, exemptions are provided to small firms to promote social welfare. That is, as it is argued, that regulating small firms to the same degree as larger firms would not benefit society when considering the costs of the regulation on these firms, such as the hardship they would endure compared to the benefits gained from the regulation.11 These exam-

9. See Bradford, supra note 3, at 3 nn.8–9 (discussing the full Americans with Disabilities Act exemption for employers with fewer than fifteen employees and ERISA continuation coverage requirements exemptions for group plans where all employers have fewer than twenty employees).
10. See id. at 3 nn.11–13 (referencing exemptions from the Securities Exchange Act of 1934 for firms with less than $10 million in total assets, from the Americans with Disabilities Act for employers with fewer than fifteen employees, and from the Investment Advisers Act for advisers with fewer than fifteen clients).
11. See infra notes 12–13; 5 U.S.C. § 603; Bradford, supra note 3, at 3; Thomas O. Sargentich, The Small Business Regulatory Enforcement Fairness Act, 49 ADMIN. L. REV. 123, 125 (1997). Initial regulatory flexibility analysis is required to describe the impact of rule making on small business entities, including the number of small business entities to which the regulation will apply, projected reporting, recordkeeping,
LEGISLATION AND PUBLIC POLICY

Exemptions include Regulation D\textsuperscript{12} of the federal securities laws, the Regulatory Flexibility Act (RFA),\textsuperscript{13} the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA),\textsuperscript{14} and certain provisions of the Sarbanes-Oxley (SOX) legislation.\textsuperscript{15} These exemptions are discussed briefly below.

Some firms benefit from direct exemptions from regulation based on size. Regulation D of the securities regulations permits the issuance of securities valued under $1,000,000 without requiring the firm to follow costly SEC registration requirements.\textsuperscript{16}

There are other legislative examples where the size of the firm is relevant to whether the regulation applies. For example, Congress has attempted to specifically release small businesses from the burdens of federal regulation by legislating broadly across all federal agencies. Both the RFA and the SBREFA require regulatory agencies to consider implementing exemptions for small businesses.\textsuperscript{17} Congress passed the RFA in 1980 with the goal of sparing small businesses the expensive costs associated with government regulation.\textsuperscript{18} The RFA requires federal agencies to take into account and report on the effects of a proposed or final rule on small businesses.\textsuperscript{19} This report is referred to as a regulatory flexibility (reg-flex) analysis, and agencies must provide time for public comment between the issuance of a reg-flex analysis of a proposed rule and the effective date of the rule.\textsuperscript{20} Reg-

\begin{itemize}
  \item 12. 17 C.F.R. § 230.504 (2010).
  \item 16. \textit{Id.} The SEC provides further exemptions for small business under Regulation A, which allows small issuers offering their securities publicly to escape many of the registration requirements of the Securities Act of 1933 and to solicit widely for investors, while permitting purchases of shares in a Regulation A offering to engage in unlimited resales. 17 C.F.R §§ 230.251–.263 (2011). See \textit{generally} Campbell, \textit{supra} note 2 (analyzing the current state of Regulation A). This regulation, however, has proven ineffective and is rarely utilized. \textit{Id.}
  \item 17. \textit{See} Bradford, \textit{supra} note 3, at 3.
  \item 18. \textit{See} Sargentich, \textit{supra} note 11, at 125. The bill included the following statement of congressional purpose: “[U]niform Federal regulatory and reporting requirements have in numerous instances imposed unnecessary and disproportionately burdensome demands including legal, accounting, and consulting costs upon small businesses, small organizations, and small governmental jurisdictions with limited resources.” Regulatory Flexibility Act, S. 299, 96th Cong. § 2(a) (1980).
  \item 20. § 603.
\end{itemize}
flex analyses have been performed for such disparate regulations as the Federal Aviation Agency’s rule that air carriers require drug and alcohol testing of its contractors and subcontractors who perform safety-related functions, and the Federal Communication Commission’s rule setting forth the conditions under which wired telecommunications carriers must transfer telephone numbers to wireless carriers.

Congress amended the RFA with the SBREFA in 1996. Judicial review was expanded under Subtitle D and is now applicable to the substance of a reg-flex analysis, any determination that a reg-flex analysis is unnecessary, and also to an agency’s delay in completion of a reg-flex analysis. Subtitle D further requires some agencies to seek recommendations from the small business community after notifying the general counsel of the Small Business Administration that small entities would be affected by a proposed rule.

The SBREFA further requires agencies to use plain English in their rule-making and also to publish guides assisting small businesses. Subtitle B establishes the position of a small business ombudsman, who may comment on behalf of anonymous small businesses and promote their interests to federal agencies. Subtitle C further allows for the recovery of attorneys’ fees when an agency’s enforcement requirements have been deemed unreasonable.

Another example of regulatory exemptions applied to small firms involves certain provisions of the SOX legislation. In its original form, Section 404 of SOX required: (a) that a corporation issue an internal control report assessing the effectiveness of the organization’s internal control structure in place to ensure responsible financial reporting,

21. See Aeronautical Repair Station Ass’n, Inc. v. FAA, 494 F.3d 161 (D.C. Cir. 2007).
22. See U.S. Telecom Ass’n v. FCC, 400 F.3d 29 (D.C. Cir. 2005).
24. Sargentich, supra note 11, at 127.
25. Specifically, the requirements apply to the Environmental Protection Agency and the Occupational Safety and Health Administration. Id. at 128.
26. Id. at 130.
27. See id. at 131. The ombudsman is to “work with each agency with regulatory authority over small businesses to ensure that small business concerns . . . are provided with a means to comment on . . . enforcement activity . . . .” 15 U.S.C. § 657(b)(2)(A) (2006).
28. See id. at 133. The SBREFA has not escaped criticism. The most serious critique of the act is that it replaces the balanced nature of the RFA with a decidedly pro-business and anti-regulation scheme. See id. at 137. The numerous procedural requirements applied to federal agencies under the SBREFA pose an undue hardship on these institutions, which already struggle to meet minimum performance requirements. Id.
with responsibility for its accuracy, and (b) that any registered public accounting firm that prepares or issues an audit report for a public corporation also issue a report on management’s assessment of its internal controls. After granting several temporary exemptions for small firms from this requirement, Congress ultimately created a permanent exemption for them. Section 404(c) of SOX was amended by the Dodd-Frank Wall Street Reform and Consumer Protection Act to provide that the requirements of 404(b) do not apply to any audit report prepared for an issuer that is neither a “large accelerated filer” nor an “accelerated filer” as those terms are defined in Rule 12b-2 of the Commission. Small firms that fall outside either of these requirements will continue to receive protection from reporting requirements under this regulatory exemption.

B. Investigations, Prosecutions, and Sentencing

There have been a few studies examining the effect of firm size and the degree of culpability of corporate executives on whether a governmental agency decides to investigate or prosecute a company under a regulatory framework. One study, for example, notes the effects of size on recent actions taken by the SEC and another finds size significant in actions taken by the Environmental Protection Agency (EPA). Another study concludes that small firms are prosecuted more vigorously than large firms. Yet, it becomes difficult to

33. James D. Cox & Randall S. Thomas, Public and Private Enforcement of the Securities Laws: Have Things Changed Since Enron?, 80 NOTRE DAME L. REV. 893, 906 (2005) (concluding that the SEC has “shifted its enforcement focus away from challenging frauds at firms in financial distress to seeking out frauds at companies where investors may have suffered larger losses, especially if they are smaller firms.”).
34. Jeremy Firestone, Enforcement of Pollution Laws and Regulations: An Analysis of Forum Choice, 27 HARV. ENVTL. L. REV. 105, 158 (2003) (“The evidence indicates that federal regulators target small firms for criminal prosecution because the detected violations of small firms are more harmful or potentially more harmful than those committed by large firms. However, even after accounting for the harm of the violation . . . the probability of a small firm facing a criminal sanction is still twice as great as that of a large firm.”).
draw empirical conclusions regarding the influence of firm size on prosecutions of firms because large firms are often “diverted from the criminal process,” due to the proliferation of deferred and non-prosecution agreements entered into between companies and the Department of Justice (DOJ). Deferred and non-prosecution agreements have been an important component of the federal government’s post-Enron efforts to pursue sanctions against the largest firms, and may be part of a conscious program of structural reform. Furthermore, the Organizational Sentencing Guidelines outline some instances where size should matter in sentencing. These studies and the Organizational Sentencing Guidelines are discussed below.

1. SEC Investigations and Prosecutions

One of the more exhaustive empirical studies suggests that January 1, 2002, represents a noticeable change in decisions of the SEC regarding the size of enforcement targets. In this study, Professors Cox and Thomas used a data set of 389 securities class action settlements that occurred between 1990 and 2003 to examine the overall effectiveness of public (SEC) and private securities enforcement. Their research uncovered a trend suggesting that the SEC began selecting larger enforcement targets post-January 1, 2002. Before January 1, 2002, financial distress was the only statistically significant factor in predicting SEC enforcement decisions, highlighting the agency’s focus on protecting investors likely to incur substantial, irreversible losses from fraud at a failing corporation.

Commission reveal that more than ninety percent of the between two and four hundred corporations convicted in federal courts each year are small, privately-held businesses with fifty or fewer employees.”).

36. Id. (“[Large] companies that have invested in compliance programs are simply diverted from the criminal process, whether by plea agreements, through civil or administrative law sanctions, or by individual prosecutions of white collar offenders.”).


38. January 1, 2002 marks the passage of about one month since the Enron bankruptcy.

39. Cox & Thomas, supra note 33, at 899.

40. Id. at 895.

41. Id. at 901–02. Although these firms are relatively small, compared to the pre-Enron period, the firms being targeted by the SEC post-Enron are, on average, twenty-three times larger than firms targeted pre-Enron in terms of market capitalization. Id. at 902, 906. Cox and Thomas offer two reasons which may account for the shift in the size of enforcement targets: (1) a new group of SEC commissioners and a new SEC Director of Enforcement were appointed following the 2000 national elections, and (2) “public concern about fraudulent practices at the largest corporations” may have contributed to an SEC preference for pursuing more high-profile cases. Id. at 906.

42. Id. at 905.
2. Investigations of the Environmental Protection Agency

The SEC is not the only federal agency receiving scrutiny for prosecutorial bias based on firm size. Other studies have focused on the relationship between a company’s size and the likelihood of prosecution by the EPA. One study focuses on the EPA’s venue decisions, noting that the EPA tends to file criminal suits against small defendants while it pursues larger defendants civilly.43 The study suggests that the EPA may choose to target large firms civilly rather than criminally because it may be more difficult to determine which individuals had personal knowledge of the environmental violations at large firms, a requirement for a criminal conviction.44 Civil prosecutions provide the agency with a lower evidentiary burden of proof.45 Furthermore, compliance with EPA regulations may be more burdensome for small firms, thus increasing the likelihood that they will engage in violations and that the agency will subject them as a group to more frequent criminal sanctions.46 But although the EPA has sought prosecutions against small and medium-sized companies, it has been shown that these companies have an extremely low audit rate, and many firms were not even familiar with the term “environmental audit.”47

3. Proliferation of Deferred and Non-Prosecution Agreements

After the collapse of Enron and the ensuing wave of corporate scandals, much has been written about the response of prosecutors to corporate fraud.48 Since 2003, however, rather than prosecute a corpo-

43. Firestone, supra note 34, at 148.
44. Id. at 109, 120 (explaining that the EPA faces a lower evidentiary burden when bringing actions for civil violations because scienter requirements are generally absent and suggesting that this factor weighs in favor of the agency choosing to bring civil prosecutions rather than criminal prosecutions).
45. Id. at 120.
46. Id. at 133.
48. See Kathleen F. Brickey, Enron’s Legacy, 8 BUFF. CRIM. L. REV. 221, 234, 244 (2004) (describing how prosecutors have been given potent enforcement tools to charge firms in “cases they believe are truly egregious”); Peter J. Meitl, Who’s the Boss? Prosecutorial Involvement in Corporate America., 34 N. KY. L. REV. 1, 15 (2007) (emphasizing that prosecutorial discretion has taken on “amplified power in the corporate criminal context”); Dale A. Oesterle, Early Observations on the Prosecution of Business Scandals of 2002-03: On Sideshow Prosecutions, Spitzer’s Clash with Donaldson over turf, the Choice of Civil or Criminal Actions, and the Tough Tactic of Coerced Cooperation, 1 OHIO ST. J. CRIM. L. 443, 444 (2004) (asserting that prosecutors have responded with investigations that have “produced a trickle of indictments and a guilty plea or two from some minor players and one CEO”); Christopher A. Wray & Robert K. Hur, Corporate Criminal Prosecution in a Post-Enron World: The Thompson Memo in Theory and Practice, 43 AM. CRIM. L. REV. 1095,
SHOULD SIZE MATTER WHEN REGULATING FIRMS?

rate entity, prosecutors have frequently entered into Deferred Prosecution Agreements (DPA) and Non-Prosecution Agreements (NPA) with those entities. Under a DPA, the government indicted a company but does not prosecute the claim. Instead, the parties enter into an agreement and if the company fulfills its obligations under the agreement, the government dismisses the indictment when the agreement expires. A company entering an NPA is not indicted, but similarly must agree to certain conditions. If the company violates the terms of the NPA, then charges may still be filed. Because in some cases an indictment alone may have severe consequences for a corporation, NPAs, which may be taken by the market to signify a lower level of culpability than DPAs, are preferable for firms. DPAs and NPAs have traditionally been used to sanction juvenile and drug offenders, but they are now powerful tools in handling corporate fraud cases. Before 1993, DPAs and NPAs had not been used to deal with federal criminal charges against a corporation, and between 1993 and 2002,

1098 (2006) (discussing how prosecutors have been prompted to “distinguish more readily between companies that deserve to be charged criminally and those that merit more lenient treatment” while at the same time overcome some of the “unintended consequences” that may “thwart” the practice of justice).


50. Greenblum, supra note 49, at 1864 (“If [a] prosecutor agrees at the close of the deferral period that the offender has cooperated with the authorities, been rehabilitated, and made restitution when applicable, the prosecutor may dismiss the indictment and free the offender from criminal liability in that jurisdiction.”).


53. See, e.g., Wray & Hur, supra note 48, at 1103.

54. See Orland, supra note 49, at 45.

55. See id. at 57.
only thirteen such agreements were made.\textsuperscript{56} In the following four years, thirty-five agreements were made.\textsuperscript{57}

There are several reasons supporting the popularity of DPAs and NPAs. One is that entering into a NPA avoids the collateral consequences associated with an indictment, such as closing the company, which, in turn, may leave thousands of people unemployed.\textsuperscript{58} Moreover, the prosecution of companies requires extensive investigation and time, making litigation costly for the prosecutor.\textsuperscript{59} By entering into DPAs and NPAs, prosecutorial resources are saved.\textsuperscript{60} Prosecutors also claim that they could not obtain broader or even the same relief through the courts.\textsuperscript{61} In addition, the corporation may be less blameworthy than the individual employees, and resources are therefore best spent prosecuting only those culpable individuals.\textsuperscript{62}

Another explanation for why DPAs and NPAs are frequently used in the corporate context may be the result of the Thompson Memorandum.\textsuperscript{63} In 2003, then-Deputy Attorney General Larry Thompson issued a memorandum stating that prosecutors would only bring charges against a corporation in a minority of cases, and that prosecution of individuals should always take precedence over the prosecution of corporate entities.\textsuperscript{64} DPAs and NPAs are claimed to be a useful means to elicit the cooperation of a corporation in the prosecution of individuals within the organization.\textsuperscript{65}

\begin{verbatim}
56. See id.
57. See Garrett, supra note 37, at 894.
58. See id. at 901; see also Greenblum, supra note 49, at 1864–65 n.7 (citing John C. Coffee, Jr., No Soul to Damn: No Body to Kick: An Unscandalized Inquiry into the Problem of Corporate Punishment, 79 Mich. L. Rev. 386, 400–05 (1981) (describing the externalities caused by prosecutions of corporations)).
60. See Garrett, supra note 37, at 901.
61. See id.
62. See id. Furthermore, prosecuting individuals instead of corporations avoids the harmful collateral consequences of prosecuting corporations. See supra note 58 and accompanying text.
64. See Wray & Hur, supra note 48, at 1098 (summarizing the Thompson Memorandum).
65. See id. at 1106. But see Orland, supra note 49, at 75 (noting that the indictment of executives is only reflected in seventeen of forty-four DPAs and NPAs between 1993 and 2006). See generally Garrett, supra note 37, at 882–83 (discussing the unique theoretical issues associated with organizational cooperation in the prosecution of employees).
\end{verbatim}
Even though the focus may have already been on individuals, it looks as if, due to the proliferation of DPAs and NPAs, even fewer companies are indicted and tried. The major exceptions were the prosecution of Arthur Anderson, LLP in 2002 and Milberg Weiss, LLP in 2006. Generally, it has been only the cases involving small companies that have gone to trial, while DPAs or NPAs tend to be entered into by large firms. But when the current leadership of a corporation has played a role in the fraud, they may be less likely to agree to settle with the DOJ, as doing so could have far-reaching consequences for them as individuals. This may be what happened in the case of Arthur Andersen, LLP and Milberg Weiss, LLP, but may more commonly be the case with smaller companies.

It may be that when prosecutors choose to focus their resources on a select group of well-known companies after a major scandal, even if in the form of an NPA or DPA, they are attempting to send a strong message to other companies that the conduct in question has serious consequences. Viewed in this light, prosecutors would not only be heeding politics and public outcry or trying to advance their own careers, but would also be trying to achieve optimal deterrence. This approach is known as the optimal penalty theory.

Further evidence of the propensity of prosecutors to focus on large companies in the wake of the Enron and WorldCom scandals comes from the large amounts of fines, restitution, and compensation paid under DPAs and NPAs. Between 2003 and 2006, the DOJ en-

66. See Orland, supra note 49, at 45 (“Since 2003 . . . [nearly] every major federal case of corporate misconduct has been resolved without filing an indictment against the firm.”).


69. See Garrett, supra note 37, at 890 (finding that deferred or non-prosecution agreements are between the DOJ and Fortune 500 companies).

70. See id. at 902.

71. See id.

72. See Ashwini Jayaratnam, Note, Prosecuting Stock-Option Backdating: The Ethics of Enforcement Techniques, 20 GEO. J. LEGAL ETHICS 755, 760 (2007) (“[Selective prosecutions] send a strong signal to other companies that illegally backdating options could result in criminal sanctions.”).

73. See id. at 761.

74. See Garrett, supra note 37, at 900.
tered into thirty-five DPAs and NPAs,75 and the average amount of compensation paid was $141 million.76

In the past, cases against large companies were almost never pursued.77 It is still true today that large companies are almost never indicted; it may even be the case that there are fewer indictments than in the past. But looking to the incidence of the indictment of large companies is misleading. Instead, it has been found that large firms are being investigated at a higher rate—they are not prosecuted simply because they are entering sweeping agreements to prevent indictment.78

4. Sentencing

Theoretically, firm size is not a factor to be considered explicitly when a judge makes sentencing decisions. The U.S. Sentencing Commission (Sentencing Commission) targeted the issue directly, and ultimately decided not to include organizational size as a factor when determining the amount of corporate liability.79 The Sentencing Commission instead chose to support the policy that “size alone was neither favored nor disfavored under federal criminal laws.”80 Yet, due to practical considerations, such as the variable impact of a universal fine on firms of different sizes, the Sentencing Commission allowed firm size to have an indirect effect on corporate sentencing under the Organizational Sentencing Guidelines.81 First, the Organizational Sentencing Guidelines provide that if a firm is so small that a fine would force it to enter bankruptcy proceedings, the fine should be reduced.82 Second, if top officials of a large company are involved in the criminal activity, then the resulting fine will be larger than if top officials at a small company are implicated.83 Third, sufficiency stan-

75. Id. at 894.
76. Id. at 900.
77. See id. at 854.
78. See id. at 888–89.
80. Id. at 411 n.29.
82. See U.S. SENTENCING GUIDELINES MANUAL § 8C3.3(b) (2010).
83. See id. § 8C2.5.
Should Size Matter When Regulating Firms?

Standards for corporate compliance programs\(^{84}\) are lower for smaller firms.\(^{85}\) Fourth, if a firm has fewer than fifty employees, it is immune from probation sentences incurred for lacking a compliance program.\(^{86}\) Finally, fines for closely held firms may be reduced by the amount of the fine imposed on the firm’s owner, although similar concerns do not affect larger firms’ fines.\(^{87}\)

II. The Moral Hazard: Influences on the Decision of Whether to Prosecute

Moral hazard refers to situations where individuals or firms behave differently because they do not fully bear the consequences of their actions.\(^{88}\) For example, if an individual obtains automobile insurance, he or she may be more likely to forget to lock the car, thereby increasing the probability of theft. Similarly, availability of deposit insurance may make the banks more likely to engage in excessive risk-taking. Depositors do not necessarily care about this excessive risk because the federal government insures their deposits. Moral hazard also arises in the context of principal-agent situations, where the

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84. Id. § 8B2.1(a)–(b) (“(a) To have an effective compliance and ethics program, for purposes of subsection (f) of § 8C2.5 (Culpability Score) and subsection (c)(1) of § 8D1.4 (Recommended Conditions of Probation - Organizations), an organization shall— (1) exercise due diligence to prevent and detect criminal conduct; and (2) otherwise promote an organizational culture that encourages ethical conduct and a commitment to compliance with the law. Such compliance and ethics program shall be reasonably designed, implemented, and enforced so that the program is generally effective in preventing and detecting criminal conduct. The failure to prevent or detect the instant offense does not necessarily mean that the program is not generally effective in preventing and detecting criminal conduct. (b) Due diligence and the promotion of an organizational culture that encourages ethical conduct and a commitment to compliance with the law within the meaning of subsection (a) minimally require the following: (1) The organization shall establish standards and procedures to prevent and detect criminal conduct. (2) (A) The organization’s governing authority shall be knowledgeable about the content and operation of the compliance and ethics program and shall exercise reasonable oversight with respect to the implementation and effectiveness of the compliance and ethics program. (B) High-level personnel of the organization shall ensure that the organization has an effective compliance and ethics program, as described in this guideline. Specific individual(s) within high level personnel shall be assigned overall responsibility for the compliance and ethics program.”).

85. See id. § 8B2.1 cmt. 2(C).

86. See id. § 8D1.1(a)(3).

87. See id. § 8C3.4.

agent makes decisions on behalf of the principal. Because the agent will typically have more information than the principal, the agent may tend to make decisions that he or she prefers, even if those decisions are not in the best interests of the principal.89

Prosecutors can be viewed as the agents for the general public in enforcing laws and regulations, as they will typically have a lot more information and power than the public about each case. The relevant question then becomes whether prosecutors use this information and power purely in the public interest or also for their own interests.90

In this vein, concerns have been voiced about prosecutorial discretion.91 As long as a prosecutor has probable cause to believe an accused committed a crime, he or she may decide to bring a charge; a decision that is essentially unreviewable by the courts.92 This power, however, is counterbalanced by the doctrine of supervisory powers, the doctrine of separation of powers, professional discipline, and the political process.93 Further, in the case of white-collar crime, it has been said that prosecutors do not play as great of a role in selecting

89. See Kathleen M. Eisenhardt, Agency Theory: An Assessment and Review, 14 ACAD. MGMT. REV. 57, 58 (1989) (“[T]he agency problem . . . arises when (a) the desires or goals of the principal and agent conflict and (b) it is difficult or expensive for the principal to verify what the agent is actually doing.”).

90. See, e.g., H. W. Perry, Jr., United States Attorneys - Whom Shall They Serve?, 61 LAW & CONTEMP. PROBS. 129, 147 (1998) (arguing that the relationship between U.S. Attorneys and the President of the United States can be viewed as a principal-agent relationship; concluding that increased willingness on the part of Presidents to fire U.S. Attorneys would reduce agency loss, although it brings about the concomitant danger that U.S. Attorneys would be made “too politically responsive”).

91. See, e.g., Janet C. Hoeffel, Prosecutorial Discretion at the Core: The Good Prosecutor Meets Brady, 109 PENN ST. L. REV. 1133, 1138 (2005) (explaining that a prosecutor “must show the public can trust him, or . . . be forced to cede his discretion”).

92. See Tracey L. Meares, Rewards for Good Behavior: Influencing Prosecutorial Discretion and Conduct with Financial Incentives, 64 FORDHAM L. REV. 851, 862 (1995) (“So long as the prosecutor has probable cause to believe that the accused committed an offense, the prosecutor is entitled to bring the charge. The prosecutor’s decision, moreover, is rarely second-guessed by the courts. Similarly, the prosecutor’s decision not to initiate a prosecution or to dismiss a prosecution is effectively unreviewable by the courts.”).

93. See Alexandra White Dunahoe, Revisiting the Cost-Benefit Calculus of the Misbehaving Prosecutor: Deterrence Economics and Transitory Prosecutors, 61 N.Y.U. ANN. SURV. AM. L. 45, 45 (2005). While prosecutors enjoy broad discretion, under the supervisory powers doctrine courts have the authority to see that this discretion does not tramel on justice within the courtroom. Separation of powers, as a system of checks and balances, allows courts to check and to restrain prosecutorial abuse of power. Additionally, prosecutor behavior is checked by potential sanctions, as well as having to satisfy voter confidence in their performance.
cases as is commonly thought.94 This is because most investigations are initiated by regulatory agencies such as the SEC, and not by the DOJ.95

It is generally agreed, however, that, notwithstanding these safeguards, prosecutors still have substantial power.96 This may be, in part, because the safeguards are inadequate. For example, although federal prosecutors are supposedly guided by the Principles of Federal Prosecution of Business Organizations,97 by several other manuals,98 and by ethical standards,99 it has been argued that these principles may be too vague and meaningless to provide any practical guidance.100 For example, Michael Simons suggests that although the Principles of Federal Prosecution imposes some limitations,101 prosecutors are still left with enormous discretion due to their unchecked ability to decide whether to bring a federal action when criminal actions are also available in state court.102 This is so even though prosecutions should not be undertaken when there is "no substantial [f]ederal interest served by prosecution; . . . the person in question is subject to effective prosecution in another jurisdiction; or . . . there is an adequate noncriminal alternative to prosecution."

Although prosecutors are vested with broad discretionary power to weigh the interests of society when making a decision to charge, the interests of prosecutors are not perfectly aligned with those of society.104 This Part considers some factors that may influence the exercise of prosecutorial discretion. These factors include career

95. Id.
96. See, e.g., Dunahoe, supra note 93, at 45–46.
97. See Thompson Memorandum, supra note 63.
98. See, e.g., U.S. DEP’T OF JUSTICE, UNITED STATES ATTORNEYS’ MANUAL (2d ed. 2011) [hereinafter MANUAL].
99. See, e.g., MODEL RULES OF PROF’L CONDUCT R. 3.8 (1998); see also ABA STANDARDS FOR CRIMINAL JUSTICE PROSECUTORIAL INVESTIGATIONS (Feb. 2008).
101. See MANUAL, supra note 98, §§ 9-27.000–760.
102. See Simons, supra note 100, at 934–35.
103. Id. at 934. Although Simons refers to the provisions of the general Principles of Federal Prosecution, the Principles of Federal Prosecution of Business Organizations instructs U.S. Attorneys to refer to the factors provided by the more general document, Thompson Memorandum, supra note 63 (referring to MANUAL, supra note 101, § 9-27.220).
104. A legislative constraint on prosecutorial discretion would likely result in over-prosecution, as legislatures also tend to over-criminalize behavior.
LEGISLATION AND PUBLIC POLICY

advancement, the influence of political aspirations and political pressure, and institutional structures.

A. Incentives to Investigation and Prosecution: Winning and Career

According to some scholars, the overriding interest of prosecutors is winning. This desire to win is said to sometimes be so strong that it may trump ethical obligations, concerns over procedural fairness, or prosecutors’ own possible concerns regarding the harshness of the federal sentencing guidelines and mandatory minimums. To support the claim that prosecutors care about winning above all else, it has been suggested that prosecutors’ desires to maintain high conviction rates explain, in part, the strong resistance of prosecutors to post-conviction claims of innocence. The argument is that if prosecutors did not care so much about their conviction rates but instead cared more about justice, there would not be such resistance. The finding that a prosecutor will frequently offer a generous plea bargain when a case is weak also suggests that prosecutors ultimately care about winning.

Several reasons are given purporting to explain the importance of winning cases to prosecutors, mainly regarding the institutional structure prosecutors find themselves in and their ability to advance professionally. First, winning cases puts the prosecutor’s office in a good light; conviction rates are used as leverage by offices in budget negotiations. Conviction rates are not the only indication of how well an

107. See id. at 134–35.
111. See id. In some systems, an appellate prosecutor will be assigned to a case after conviction. Professor Medwed suggests several other factors explaining individual and institutional prosecutorial resistance to claims of innocence that would also be relevant in such systems. These factors include: a public service ideology that the system punished the true perpetrator of a crime, the group dynamics of working with a law enforcement agency, a hesitancy to revisit disturbing experiences with the victims of violent crimes, a self-conceived role as a protector of the public, and a pragmatic approach to the abundance of post-conviction motions. Id. at 137–49.
112. See Smith, supra note 109, at 391.
113. See Medwed, supra note 106, at 135.
SHOULD SIZE MATTER WHEN REGULATING FIRMS?  

19

office is doing; the number of prosecutions matters, too. At the federal
level, the perception is that offices that continue to increase the num-
ber of cases prosecuted have more resources allocated to them, while
offices with declining prosecution rates appear to be penalized.114

Second, winning helps careers. Because it is difficult to measure
a prosecutor’s job performance, superiors often look to conviction
rates.115 Prosecutors with the highest conviction rates tend to have the
best performance reputations.116 This in turn means that these prose-
cutors have the best chances of advancement internally; hence the de-
sire to win cases is strong.117 Even if prosecutors have aspirations
other than rising within a prosecutor’s office, winning can be im-
portant. If prosecutors aspire to run for mayor, governor, or judge—and
many do118—then high conviction rates can be used to gain the sup-
port of the public.119 Some commentators further suggest that reflect-
ing on past convictions is crucial to the electoral chances of a
prosecutor.120 Chief prosecutors at the state level have a special inter-
est in obtaining high conviction rates.121 Because they are elected offi-
cials and usually may be reelected any number of times, they may care
about conviction rates not merely to advance, but simply to maintain
their position.122

It is also worth noting that the desire to win seems to strengthen
over time.123 Prosecutors who perceive their primary function to be
securing convictions have twice as much experience, on average, as
those who see their primary function as achieving justice.124 This
might mean that prosecutors come into office expecting to do justice,
but after a while realize that if they want to advance professionally

114. See Simons, supra note 100, at 932–33. Simons, a former Assistant United
States Attorney, does not state whether this is actually the practice of the Justice De-
partment. Id.

115. See Medwed, supra note 106, at 134; see also Steven K. Berenson, Public
Lawyers, Private Values: Can, Should, and Will Government Lawyers Serve the Pub-
lic Interest?, 41 B. C. L. Rev. 789, 808–09 (2000) (citing Albert Alschuler, The Pros-
ecutor’s Role in Plea Bargaining, 36 U. Chi. L. Rev. 50, 106 (1968-69))

116. See Medwed, supra note 106, at 134.

117. See id. at 134–35.

118. See e.g., Richard L. Engstrom, Political Ambitions and the Prosecutorial Of-


120. See id. at 155.

121. See id. at 151.

122. See id.

123. See Medwed, supra note 106, at 138.

124. Id. (citing George T. Felkenes, The Prosecutor: A Look at Reality, 7 Sw. U. L.

Rev. 98, 111 (1975)).
(whether internally or externally), their main focus needs to be on conviction rates.125 This is an important point if they are primarily seeking to maximize professional gains.126

A study analyzing how prosecutors exercise their discretion to prosecute an alleged wrongdoer at either the state or federal level supports the career maximization idea.127 The study found that federal prosecutors focus on prosecuting individuals who are older, more successful in their (lawful) careers, more likely to be married, more likely to be Army veterans, and less likely to have a criminal record than the individuals prosecuted by their state counterparts.128 In particular, federal prosecutors take on more cases in which the defendants have private attorneys, or are likely to hire private attorneys.129

These findings can be interpreted in two ways. The first explanation is that the defendants prosecuted by federal prosecutors are more difficult to prosecute and are more likely to have crossed state lines, resulting in their being charged in federal court. Another plausible explanation is that prosecuting these defendants is more likely to result in high-profile cases. Federal prosecutors would therefore take these cases not because they necessarily belong in federal court, but because these cases are more helpful in advancing the prosecutors’ careers.130 This latter possibility is further supported by the finding that federal prosecutors based in states where private sector salaries are higher are more likely to bring cases with the potential to advance the prosecutors’ private-sector career prospects.131 Read together with other works,132 this study seems to support the claim that prosecutors ulti-

125. See Hoeffel, supra note 91, at 1140 (“[T]he typical . . . prosecutor . . . will only be noticed, climb the career ladder, or become a member of elected office . . . if he racks up the convictions.”).
126. See Dunahoe, supra note 93, at 60–61.
127. See Glaeser et al., supra note 105.
128. Id. at 288.
129. Id.
130. See id.
131. See id. at 282–83.
132. See, e.g., Rebecca Holland-Blumoff, Getting to “Guilty”: Plea Bargaining as Negotiation, 2 HARV. NEGOTIATION L. REV. 115, 134 (1997) (arguing the hierarchical structure of prosecutors’ offices suggests they are motivated by supervisory as well as institutional incentives related to a particular office, such as achieving higher conviction rates through plea deals); Patricia M. Wald, “For the United States”: Government Lawyers in Court, 61 LAW & CONTEMP. PROBS. 107, 120 (1998) (explaining that prosecutors must carefully guard internal deliberations while at the same time giving due respect to the court); Kulbir Walha & Edward E. Filusch, Eliot Spitzer: A Crusader Against Corporate Malfeasance or a Politically Ambitious Spotlight Hound? A Case Study of Eliot Spitzer and Marsh & McLennan, 18 GEO. J. LEGAL ETHICS 1111, 1127–31 (2005) (analyzing the strategic use of prosecutorial commentary in the public eye).
2012] SHOULD SIZE MATTER WHEN REGULATING FIRMS?  21

...ately care about their careers and strategize accordingly.133 Thus, it is plausible that both the goal of winning a case and the desire to advance a prosecutor’s professional goals play a role in prosecutorial motivation.

B. Politics, Public, and Agents

Some commentators argue that prosecutors are political.134 U.S. Attorneys are political appointees, and their sponsor is usually a United States Senator. The idea of prosecutors as political often means they are interested in seeking higher office.135 Those interested in higher office may try to prosecute as many attention-grabbing cases as possible to emphasize their profile with important political figures and the public.136 Apart from being motivated by a desire to climb the political ladder, prosecutors may also be motivated by ideology.137 These prosecutors may care less about the high-profile nature of the cases and more about cases that fit well with their ideological convictions.138 But one wonders how often, and for how long, ideology is the main motivator for prosecutors.139

The idea of prosecutors as political not only means they have political aspirations; at its core, it simply means that they may yield to political pressure (even though the reason for such a yield might remain political aspirations).140 Declination rates—the incidence with which prosecutors choose not to pursue an action—are low when there is public or political pressure for prosecutors to take action.141 For example, when states were calling for stricter enforcement of immigration laws, immigration prosecutions in federal border districts increased more than seven-fold between 1994 and 2000.142

133. That this study focused on federal prosecutors does not mean state prosecutors are not motivated by the same concerns. See Glaeser, supra note 105, at 264.
134. See Medwed, supra note 106, at 152 (asserting all members of a prosecutor’s office should be aware of the political consequences of their conduct in handling cases); see also Perry, supra note 90, at 143.
135. See Perry, supra note 90, at 143.
136. See id. at 144.
137. See id. at 142.
138. See id. at 142. For example, such prosecutors may be motivated by a desire to “protect the public.” Medwed, supra note 106, at 139.
139. See Medwed, supra note 106, at 138 (noting that one study showed that prosecutors who care most about conviction rates have twice as much experience on average as prosecutors who care about justice).
140. See Perry, supra note 90, at 142.
142. Id. at 766.
Prosecutors may try not only to appease the electorate and their superiors, but also to maintain good relationships with other law enforcement agents. For instance, the high declination rate for civil rights offenses (92.8% in 1999) may be because many of the suspects are law enforcement officers. A prosecutor who questions the conduct and integrity of law enforcement agents may not be able to expect much cooperation from officers in subsequent cases.

It appears that whether the motivation is to please the public, the office, or to advance one’s own career (the former two perhaps reinforcing the latter), prosecuting high-profile cases is important to prosecutors. As described by one commentator, high profile cases “hold . . . the promise of institutional and personal glory.” Prosecutors may thus focus on high-profile cases because these cases enable them to move on to lucrative jobs, even though such a focus may be seen as an appropriate response to a public outcry, and reflect a preference of the administration. These interests may trump the deterrent or remedial effects of such high-profile prosecutions. The value that high-profile cases represent both to individual prosecutors and to institutions such as the DOJ and the SEC can act as a powerful incentive that pulls prosecutors away from the most socially beneficial uses of their resources and power.

One area where prosecutors may try to make a name for themselves through high-profile prosecutions is white-collar crime. In the 1980s, corporate consolidations led to job losses and the public perceived corporate America as ruthless. Prosecutors responded to this perception by bringing a number of high-profile cases. Similarly, prosecutors also brought a number of high-profile cases in the

143. Id. at 764.
144. Id. at 763–64; see also Simons, supra note 100, at 933 (explaining how many cases would be more appropriately brought in state court).
146. Richman, supra note 141, at 760.
148. See id.
149. See id. at 372. High-profile corporate law prosecutions have been prevalent in post-scandal eras, such as those following the stock market crash in 1929, the stock market crash of 1987, and the recent downturn following the technology bubble bursting in 2001. See Seigel & Slobogin, supra note 94, at 1130 (explaining that since Enron, the pressure to prosecute white-collar crime has become particularly intense).
151. See id.
wake of the Enron collapse.\footnote{152} These cases made national headlines and attracted public attention.\footnote{153} Yet, Martha Stewart, for example, was not prosecuted for insider trading (the conduct that prompted and was the focus of the government’s investigation), but rather for lying during the investigation.\footnote{154} That the case against Martha Stewart proceeded on grounds only tangentially related to the original investigation suggests that the prosecutors were mainly taking action in response to public outcry.

More than U.S. Attorneys and other federal prosecutors, state prosecutors must keep a careful eye to local interests. They may consider the political ramifications of prosecuting firms that are economically important to local communities as well as the need, from the perspective of state government, to limit the public funds expended on investigation and prosecution. It has been found that state prosecutors are somewhat reluctant to exceed their investigative capacity, especially when local costs of enforcement are likely to offset its benefits.\footnote{155} For example, state prosecutors may not pursue large-scale corporate fraud because they lack the resources and expertise to do so, in addition to the ancillary costs that accompany local enforcement.\footnote{156} In this sense, prosecutors advance local interests and, in doing so, make their own positions more secure. Even federal prosecutors, who are appointed and not elected, are not free from political influences; high conviction rates may be important to secure their positions.\footnote{157}

III. EMPIRICAL STUDY—BACKDATING

In this section, we provide an empirical test to examine whether small firms should be exempt from either regulation or regulatory enforcement, and whether policy prescriptions in this matter should be based on observed prosecutions or investigations. As stated earlier, small firms have been granted exemptions from various regulations,
supposedly for social welfare reasons.\textsuperscript{158} There is also some evidence, as discussed in Part II.B, that suggests that prosecutors favor pursuing higher profile cases, which generally implies investigations of larger firms.\textsuperscript{159}

To decide if firm size should be a determinant of the optimal regulation of firms, we need data on the relationship between the firm size and the extent of violations. When researchers attempt to obtain data on violations, they tend to rely on investigations or prosecutions.\textsuperscript{160} Investigations or prosecutions, however, are influenced by prosecutorial choices which, as discussed above, may be driven in part by moral hazard or social welfare considerations.\textsuperscript{161} These considerations are likely to introduce bias in what types of firms are targeted, and more likely than not, result in prosecutors favoring the pursuit of relatively larger firms.\textsuperscript{162} Hence, prosecutorial choices might create the false impression that smaller firms are less culpable because of fewer observed violations which, in turn, will result in even fewer investigations of smaller firms. It is preferable, therefore, that any examination of compliance by smaller firms not be based solely on observed investigations. A more rigorous approach to address the question of whether smaller firms should be exempt from particular regulations or whether law enforcement agents should be more lenient toward them should involve an assessment of the relationship between violations and firm size that is not based on actual investigations or prosecutions. Unfortunately, researchers usually cannot observe violations independent of investigations and subsequent prosecutions by regulatory or law enforcement authorities.

The options backdating practice, in contrast, provides a rare opportunity where researchers can estimate the likelihood of a violation without resorting to data on investigations or prosecutions. By observing the firm’s stock price behavior around reported option grant dates and checking the frequency with which options were granted at favorable exercise prices (the exercise price is usually the stock price on the grant date), the likelihood that the company has engaged in options backdating can be estimated. Whether smaller companies are over- or under-represented in the sample of companies estimated to

\begin{itemize}
\item \textsuperscript{158} See supra Part I.A, notes 1–3, 6, 18, and accompanying text. The efficiency perspective trades off costs of investigation and prosecution against the benefits arising from financial recovery and deterrence.
\item \textsuperscript{159} See supra notes 147–155 and accompanying text.
\item \textsuperscript{161} See discussion supra Parts II.A, II.B.
\item \textsuperscript{162} See discussion of high-profile prosecutions supra Part II.B.
\end{itemize}
have engaged in backdating can then be examined. This sample can be
further checked to determine whether the companies that are investi-
gated or prosecuted for backdating are likely to be larger on average
than the sample of companies that we estimate to have engaged in
backdating. If so, it may be that prosecutors are relatively lenient to-
wards smaller firms, perhaps either for social welfare considerations
or due to moral hazard.

If it is found that prosecutors do focus on larger firms, then it will
support the view that observed investigations and prosecutions are not
the correct measure for formulating regulatory policy, especially when
it comes to providing exemptions for small firms. Before describing
our empirical analysis in detail, the next Part provides an overview of
options backdating.

A. An Overview of Stock Options Backdating

This Part provides a brief description of stock options backdat-
ing, and the academic evidence consistent with the prevalence of the
practice before and after the enactment of SOX. Before describing
backdating, it is important to note that backdating stock options is not
itself illegal, as long as it is duly authorized by the board, fully dis-
closed, and reported in keeping with tax rules.\textsuperscript{163} It appears, however,
that firms that have engaged in backdating have tended to do so co-
vertly, in violation of reporting requirements and tax laws.

Backdating is best explained using a simple example. Suppose an
executive is awarded options by the board of directors on April 15,
when the firm’s stock price is $40. As is the practice with almost all
awards (and required, in most cases, by corporate charters),\textsuperscript{164} these
options are awarded “at-the-money,” meaning that the exercise price
is set equal to the stock price on the grant date, here $40.\textsuperscript{165} If the
stock price at the time of exercise exceeds the exercise price of $40,

\begin{footnotesize}
\begin{enumerate}
\item See Linda Chatman Thomsen, Dir., Div. of Enforcement, Speech by U.S. Sec.
and Exch. Comm’n Staff, Options Backdating: The Enforcement Perspective (Oct. 30,
htm#foot1).
\item About 95% of the options are granted at-the-money and the remaining options
are granted out-of-the-money. Brian J. Hall & Kevin J. Murphy, \textit{Optimal Exercise
Prices for Executive Stock Options}, 90 Am. Econ. Rev. 209 (2002). The reasons for
this practice are explained in Narayanan et al., \textit{ supra} note 163, at 1602–05.
\end{enumerate}
\end{footnotesize}
the payoff to this executive will be the difference between the stock price prevailing at the time of exercise and the exercise price of $40.

Suppose the firm’s stock price has been rising before the board decision date. The executive sees an opportunity to increase her compensation and declares that she received at-the-money options on March 15, when the stock price was $30, and files a Form 4 report\textsuperscript{166} with the SEC that March 15 is the grant date.\textsuperscript{167} This is backdating. This declaration automatically sets the exercise price equal to the stock price on March 15, or $30. What the board intended was that the executive receive options on April 15 with an exercise price of $40. What the executive declared was that she received at-the-money options with an exercise price of $30 on March 15. The payoff to this executive now equals the stock price at the time of exercise, less the exercise price of $30 if the stock price ends up above $30 at the time of exercise. By obtaining options at a lower exercise price than the board intended, the executive received more compensation than intended by tampering with corporate documents. Also, because the board decision was really made on April 15, this executive received options that are $10 in-the-money immediately.

Because the board decision date and the designated grant date are not easily available, researchers have used several indirect methods to detect possible backdating. The only dates available to researchers are the reported grant date and the date of Form 4 filings (report date) with the SEC.\textsuperscript{168} If executives are backdating, there is likely to be a


\textsuperscript{167} In this example, we implicitly assume that the executive is solely responsible for the backdating. The basic idea remains the same even if the board is complicit in this practice.

time lag between the reported grant date and the report date: the longer this time lag the more likely they were seeking a lower exercise price. This in turn implies that the extent of stock price rise following the reported grant date will be positively correlated with the reporting lag.

As of August 2002, SOX requires that option grants be reported within two business days of the grant date. This requirement can severely limit the extent of backdating if executives simultaneously wish to abide by the two-day rule. During the period after SOX and ending in 2005, executives wishing to backdate appear to have flouted this rule. As expected, SOX has reduced the practice, but has not fully eliminated it.

Dating Game]. For a simple example of forward-dating, refer to Narayanan et al., supra note 163, at 1601–02. Because, even in the case of forward-dating, executives are still seeking a reported grant date with a lower stock price, the implications for our analysis are similar regardless of the type of dating game involved.


170. Professors Narayanan and Seyhun used this fact to identify the existence of backdating. Using a data set of over 600,000 grants during the period of 1992–2002 (almost all of them pre-SOX), they found that post-grant returns increased with reporting lags. See Narayanan & Seyhun, Do Managers Influence Their Pay?, supra note 169. In the follow-up study using post-SOX data of over 638,000 grants, they found a similar positive correlation. See Narayanan & Seyhun, The Dating Game, supra note 168, at 1909. Bebchuk et al. found further evidence that CEOs and directors obtain option grants at low prices that cannot be explained by just luck. See Lucian A. Bebchuk et al., Lucky CEOs and Lucky Directors, 65 J. FIN. 2363 (2010) [hereinafter Bebchuk et al., Lucky CEOs].


172. Professors Narayanan and Seyhun show that more than 20% of the grants after SOX are reported late and that about 10% are reported later than one month (or 22 business days). The paper shows that SOX has clearly reduced the practice as expected, but has not fully eliminated it. See Narayanan & Seyhun, Do Managers Influence Their Pay?, supra note 169; M. P. Narayanan & H. Nejat Seyhun, Effect of Sarbanes-Oxley on the Influencing of Executive Compensation (Nov. 2005) (unpublished working paper) [hereinafter Narayanan & Seyhun, Effect of Sarbanes-Oxley] available at http://ssrn.com/abstract=852964.

173. See Narayanan & Seyhun, Effect of Sarbanes-Oxley, supra note 172.
B. Data and Variables

This Part describes the variables used in our empirical test of backdating prosecutions and the various data sources. In order to estimate which firms have engaged in backdating, we obtained option grants data from a compilation by the SEC of the filings to meet Section 16(a) requirements of the Securities and Exchange Act of 1934.\footnote{174} Our sample contained all option grants by publicly traded firms reported on Form 4 from January 2002 until December 2005, which resulted in a sample size of 6,297 firms.\footnote{175} Our unit of observation was the firm grant date. If multiple grants were made on the same date, we considered these grants as a single observation. The mean number of grant-dates per firm in the sample was 3.4, and the median was 3. We used stock prices around the grant date to identify instances of backdating.\footnote{176} For each firm in our sample, we computed the number of times options were granted at one of the three lowest stock prices during a 51-day window centered on reported grant dates. If a grant date stock price was tied for third place, we conservatively considered it to be not among the three lowest stock prices. We then divided this number by the total number of option grant dates by the firm during our sample period. If the resulting ratio was greater than 10%, we classified the firm as having engaged in backdating. For example, if a firm had five option grant dates during our sample period, and on two of those dates, options were granted at favorable exercise prices, then the ratio was 40% and the firm was considered to have engaged in backdating. In our sample, 19.5% of the grant-date stock prices were among the three lowest stock prices during the 51-day window. Among the 5,739 firms for which we had stock price data, 8.55% of the firms met or exceeded the 10% threshold mentioned ear-


\footnote{175. We choose this time period because it is before the backdating practice became widely known through academic papers and newspaper articles. See, e.g., R. Heron & E. Lie, Does Backdating Explain Stock Price Pattern Around Executive Stock Option Grants?, 83 J. Fin. Econ. 271 (2007); Charles Forelle & James Bandler, The Perfect Payday; Some CEOs Reap Millions by Landing Stock Options When They Are Most Valuable; Luck—Or Something Else?, WALL ST. J., Mar. 18, 2006, at A1; Narayanan & Seyhun, Do Managers Influence Their Pay?, supra note 169. This enables us to check the fraction of backdating firms that get prosecuted. Once the backdating issue became public, most companies stopped backdating, thereby weakening the link between backdating firms and firms implicated in backdating.}

\footnote{176. This follows the criteria of previous studies. Bebchuk et al., Lucky CEOs, supra note 170; Narayanan & Seyhun, The Dating Game, supra note 168; Narayanan & Seyhun, Do Managers Influence Their Pay?, supra note 169.}
lier, resulting in the identification of 490 firms as having engaged in backdating. We call these firms “backdating firms.”

We then compiled a list of companies that have been actually implicated in backdating from a website maintained by the Wall Street Journal.177 Our sample is drawn from the data posted on the website on February 25, 2007. We included all companies that have been reported to have been under investigation or prosecuted of backdating either by the SEC or the DOJ. We excluded companies that conducted an internal investigation on their option granting practices. We found 102 companies implicated in backdating by the SEC or the DOJ and refer to these as “implicated firms”. Among the implicated firms, 48 are also in the backdating sample. Two of the implicated firms are not in our original sample of 6,297 firms.

We used these data sets to perform the following analyses. First, we compared the size of firms in the backdating sample to that of the general firm population to see if small firms are over- or under-represented in the backdating sample. Second, we compared the size of firms in the implicated sample to that of the general firm population to see if small firms are over- or under-represented in the implicated sample. Finally, we directly compared the size of firms in the backdating sample to that of the firms in the implicated sample to check for the effect of prosecutorial choices, that is, whether larger firms are more likely to be implicated.

Unless otherwise stated, all variables were computed on an annual basis from 2002 to 2005 and then averaged over the sample period. This was done to reduce idiosyncratic variability, particularly in board and executive compensation variables.178 Because our intent is to investigate whether smaller firms are more likely than average to be violators of regulations and whether larger firms are more likely to be investigated or prosecuted, the key variable in our analysis is the firm size. The variable we used for firm size is the natural logarithm of the average calendar year-end market capitalization in millions of dollars.

178. Because incentive compensation awards take place infrequently, we increased the information content of our variables and avoided unrelated year-to-year variability by averaging over the sample period.
during 2002–2005 (Market Cap).\textsuperscript{179} We obtain the Market Cap from the Center for Research in Security Prices US Stock database.\textsuperscript{180}

In order to isolate the effect of firm size, we used a set of control variables that potentially influenced the likelihood of backdating. We grouped the control variables we used into three categories: governance variables, firm performance variables, and compensation variables. More effective corporate governance would presumably reduce, if not eliminate, the practice of backdating, whether initiated by the board members or the executives. The strength of corporate governance is measured by using several variables. The first set of variables is commonly-used governance indices. The G-Index is a governance index\textsuperscript{181} that is, primarily, a measure of the number of anti-takeover provisions in a firm’s charter and in the legal code of the state in which the firm is incorporated. The index is constructed for every firm by considering twenty-four provisions and by adding one point for every provision that reduces shareholder rights (i.e., the range of the index is 0–24). Therefore, the greater the index value, the lower the strength of governance.\textsuperscript{182} The G-Index is commonly used in financial economics research as a proxy for corporate governance.\textsuperscript{183} In the intermediate years in which the index was not updated, we assumed that the index remained unchanged from the previous year. We also provide results using an alternative, proposed index, which is an entrenchment index (E-Index).\textsuperscript{184} The second measure of corporate

\textsuperscript{179.} To reduce the impact of extreme observations, we took the natural logarithm of market capitalization variable.

\textsuperscript{180.} For a list of the data sources used by the center, see Data Sources, CTR. FOR RESEARCH IN SEC. PRICES, http://www.crsp.com/crsp/resources/data_sources.html (last visited Nov. 17, 2011).

\textsuperscript{181.} See Paul Gompers et al., Corporate Governance and Equity Prices, 118 Q.J. ECON. 107, 114–15 (2003).

\textsuperscript{182.} Using this index, Gompers et al. show that firms with better governance provide greater shareholder returns. See id. at 117.

\textsuperscript{183.} See Lucian A. Bebchuk et al., What Matters in Corporate Governance?, 22 REV. FIN. STUD. 783 (2009) [hereinafter Bebchuk et al., What Matters?]. The index is constructed and reported about every two years by the Investor Responsibility Research Center and we obtained it from Andrew Metrick’s web site. Andrew Metrick, Data: Governance Index Data by Firm, YALE SCH. OF MGMT., http://www.som.yale.edu/faculty/am859/data.html (last visited Apr. 3, 2011).

\textsuperscript{184.} This index has been proposed by Bebchuk et al. The authors argue that only six of the twenty-four provisions of the G-Index that constitute the E-Index are relevant for measuring the strength of governance. Four of these provisions (staggered boards, limits to shareholder amendments of the bylaws, supermajority requirements for mergers, and supermajority requirements for charter amendments) limit the extent to which a majority of shareholders can impose their will on management. The other two provisions are takeover defenses: poison pills and golden parachutes. Bebchuk et al., What Matters?, supra note 183, at 785. We obtain the E-Index data from Professor Bebchuk’s website. See Lucian A. Bebchuk, Data on the Entrenchment Index 1990-
governance used is board composition—in particular, board independence. We used director independence and CEO-Chairman duality as proxies for board independence. Independent directors are defined by the database as those who are not executives of the firm or affiliated with the firm’s executives. Our measure of director independence is the average proportion of board members for a firm during 2002–2005 that is considered independent (Ind. Directors). The motivation for the second measure of board independence, CEO-Chairman duality, is the evidence that if the same individual holds both positions (CEO and chairman of the board of directors), corporate governance is generally weaker. To measure the CEO-Chairman duality, we constructed a dummy variable for each year for each firm that takes on a value of one if the CEO is also the chairman of the board of the firm in that year. If there were multiple CEOs in a firm in a given year, if any of the CEOs within that year is also the chairman, then the dummy variable takes on the value of 1 for that year. We then averaged these dummy variable values for each firm over the 2002–2005 time period (ChmCEO).

186. There is a large body of empirical work that suggests that the greater the proportion of independent directors on the board and on the board committees, the better the corporate governance of the firm. For example, Michael Weisbach finds that when boards are dominated by outside directors, CEO turnover is more sensitive to firm performance than it is in firms with insider-dominated boards. Michael Weisbach, Outside Directors and CEO Turnover, 20 J. Fin. Econ. 431 (1988). Dahya et al. find that CEO turnover is more sensitive to performance in United Kingdom firms that adopted the Cadbury Commission’s recommendations that corporations include at least three outside directors and that the positions of Chairman and CEO be held by different individuals than non-adopting firms. See Jay Dahya et al., The Cadbury Committee, Corporate Performance, and Top Management Turnover, 57 J. Fin. 461 (2002). April Klein finds that the number of insiders on the finance and investment committees is positively associated with better performance. See April Klein, Firm Performance and Board Committee Structure, 41 J. Law & Econ. 275, 277 (1998).
187. See Vidhan K. Goyal & Chul W. Park, Board Leadership Structure and CEO Turnover, 8 J. Corp. Fin. 49 (2002). Goyal & Park find that when there is duality, the CEO has increased power over the board reflected in lower sensitivity of CEO turnover to performance. See id.
188. We used other metrics of board independence, such as audit and compensation committee independence, but the results were similar.
from RiskMetrics\textsuperscript{189} through their ISS Governance Risk Indicators service.\textsuperscript{190}

The final measure of corporate governance we used was CEO power. It has been suggested that powerful CEOs influence or co-opt boards of directors and therefore capture the pay-setting process.\textsuperscript{191} One of the ways powerful CEOs corrupt the pay-setting process is to engage in questionable practices like backdating. We used CEO’s tenure as a proxy for CEO power.\textsuperscript{192} We measured CEO tenure by the number of years the CEO has held her current position at a given firm (CEO Tenure).

A stock market performance variable is included to control for the possibility that backdating incentives increase when the stock performs better, as the benefits of backdating are directly related to stock returns. It is also likely that better performing CEOs are more visible and more likely targets for prosecutors and regulators. We used the risk-adjusted average monthly stock return from January 1998 to December 2005 (Excess Stock Return) as a proxy for firm performance. Risk-adjusted returns were calculated for each firm by subtracting from its monthly stock return a portfolio return matched to each firm’s book-to-market, size, and momentum characteristics.\textsuperscript{193} Stock returns and other data were obtained from the CRSP database.


\textsuperscript{191.} See Lucian Bebchuck & Jesse Fried, Pay Without Performance: The Unfulfilled Promise of Executive Compensation (2004) (discussing the CEO power hypothesis, how CEOs influence the board, and the various ways in which CEOs corrupt the pay-setting process).

\textsuperscript{192.} Our use of CEO tenure as a proxy for CEO power reflects an idea frequently expressed in organizational behavior research. Much of this research is informed by the supposition that the longer a CEO’s tenure, the greater her influence in the organization, and the greater her influence over her compensation. For example, employing this hypothesis, Hill & Phan found that longer CEO tenure correlates with poorer relationships between CEO compensation and stock returns: “As tenure grows the relationship between pay and firm size and between pay and firm risk becomes stronger and the relationship between pay and stock returns becomes weaker.” Charles W.L. Hill & Phillip Phan, CEO Tenure as a Determinant of CEO Pay, Acad. Mgmt. J. 707, 715 (1991).

\textsuperscript{193.} See Kent Daniel et al., Measuring Mutual Fund Performance with Characteristic-Based Benchmarks, 52 J. Fin. 1035 (1997). We also used accounting performance metrics such as return on assets, net income growth, sales growth, and operating income growth, but generally there were no significant differences in these variables between the backdating firms and Implicated Firms.
Because the incentive to backdate is likely related to the amount of compensation, and in particular to the amount of compensation in the form of option grants, we included three compensation variables: total compensation, option compensation, and the portion of total compensation in the form of options. Total compensation was computed as the natural logarithm of the average annual total CEO compensation over the 2002–2005 period, which included salary, bonus, value of restricted stock granted, Black-Scholes value of stock options granted,\footnote{The Black-Scholes option pricing model provides the value of the European-style call option on a non-dividend paying stock as a function of the current stock price, exercise price, remaining time to maturity, risk-free rate, and stock return volatility, assuming that capital markets are perfect and stock prices follow a geometric Brownian motion with constant drift and volatility. \textit{See} Fischer Black & Myron Scholes, \textit{The Pricing of Options and Corporate Liabilities}, 81 J. Pol. Econ. 637 (1973).} and long-term incentive payouts (Total Compensation).\footnote{Taking natural logarithms reduces the sensitivity of our results to extreme observations.} Option compensation was computed as the natural logarithm of the average annual Black-Scholes value of the options granted to the CEO during 2002–2005 (Option Compensation). Both Total Compensation and Option Compensation were measured in thousands of dollars. The proportion of option compensation is the natural logarithm of the fraction of the value of total compensation an executive received in the form of option grants, based on its Black-Scholes value (Option Proportion). Information on executive compensation was obtained from COMPUSTAT’s Executive Compensation database.\footnote{ExecuComp, CAPITAL IQ COMPUSTAT, \url{http://www.compustat.com/myProductDetail.aspx?id=305} (last visited Nov. 17 2011).}

C. Results

Table I provides the summary statistics of the explanatory variables used in this study. Panel A provides the mean values of the explanatory variables for the sample of all firms. Panel B provides the mean values of the explanatory variables for the sample of backdating firms, the difference in the mean of each of the variables between the backdating firms sample and the all firms sample, and the significance of the differences (based on t-statistics). Panel C provides similar information as Panel B but for Implicated Firms.

Table I shows that the mean size of backdating firms as measured by the variable Market Cap is smaller than that of all firms ($284 million versus $213 million), and the difference is significant at the
LEGISLATION AND PUBLIC POLICY

1% level. This statistic implies that small firms are less likely to comply with regulation, at least in the context of backdating, raising doubts about the wisdom of exempting small firms from regulations or their enforcement. The mean size of Implicated Firms ($1,826 million), on the other hand, is significantly greater than that of all firms (at the 1% level), which suggests that prosecutors and regulators are more likely to pursue larger firms on average (more than eight times larger on average). The result that Implicated Firms are larger than average while backdating firms are smaller is consistent with the view that prosecutorial choice plays a role in the selection of firms for investigation, and cautions against policy prescriptions based on observed investigations or prosecutions.

The Ind. Directors and CEO Tenure variables differ significantly between Implicated Firms and firms on average (at 1% level): Implicated Firms have fewer independent directors and their CEOs have longer tenure when compared to firms on average, indicating that corporate governance in implicated firms is not as strong as the average firm.

Not surprisingly, the performance of both backdating firms and Implicated Firms, as measured by the variable Excess Stock Return, is better than the sample of all firms on average. Backdating is profitable only when stock returns are positive, and the firms that are targeted are likely to be those with very high stock returns and, concomitantly, very high potential benefits to its executives from backdating.

The option compensation of both backdating and implicated CEOs is significantly greater than that of the general CEO population (at the 10% and 1% level, respectively). The portion of compensation in the form of option grants is significantly higher (at the 1% level) for backdating and implicated firm CEOs relative to CEOs in the all-firm sample. These results are consistent with the notion that CEOs with a greater proportion of option compensation are more likely to engage in backdating and are more likely to be investigated and prosecuted.

197. The means reported here are geometric means of market capitalizations. Because the figures in Table 1 are averages of the logarithm of market capitalizations, we obtain the geometric means by computing the exponents of these figures.

198. The G-Index is significantly lower (at the 1% significance level) for both backdating and implicated firms which implies that backdating and implicated firms have better corporate governance than firms on average as measured by the G-Index. A similar pattern is obtained for the E-index as well. These results suggest that firms are likely to ensure that they rank well on observable metrics such as G-Index and E-Index even as they engage in legally and ethically questionable practices.
SHOULD SIZE MATTER WHEN REGULATING FIRMS?

Table II provides the univariate\textsuperscript{199} differences in the explanatory variables between the backdating and implicated samples. The mean size, as measured by Market Cap, is significantly greater (at the 1\% level) for the implicated sample, more than eight times that of the backdating sample, a result that is consistent with the hypothesis that prosecutors pursue the larger violating firms. The Excess Stock Return variable is significantly higher (at the 1\% level) in the implicated sample, implying that CEOs of firms with greater positive returns are more likely to be the egregious backdaters, and therefore are more likely to be targets of investigation.

All three of the compensation variables are greater for the Implicated Firms when compared to the backdating sample (significant at the 1\% level). This implies that firms that pay substantially higher amounts in compensation (and more of it in the form of option grants) are those likely to be targets of investigation.\textsuperscript{200}

Next, we provide more formal regression analyses to check the robustness of the univariate results presented in Tables I and II. Table III reports the results from a logit regression where the dependent variable is a dummy variable that takes on a value of 1 if we assume the firm has engaged in backdating (i.e., the firm is in the backdating sample).\textsuperscript{201} We report results for two models, the only difference being that Model 1 uses the G-Index as a proxy for governance, while Model 2 uses the E-Index. The sample includes all firms in our original sample for which data variables are available, which results in a sample size of 1,226 firms for Model 1 (126 of which are backdating firms) and 1,147 firms for Model 2 (120 of which are backdating firms). In these regressions, we scaled total compensation by market capitalization, as these two variables are highly correlated. Specifically, we used the natural logarithm of the ratio of total compensation to market capitalization where both variables are as defined before. We call this variable Scaled Total Compensation.

The results from Table III are generally consistent with the univariate results. The important result from the table is that the Mar-

\textsuperscript{199} Univariate refers to a single variable. In a univariate regression there is a single explanatory variable.

\textsuperscript{200} In addition to checking the significance of the differences in means, we also conducted Kolmogorov–Smirnov tests to verify if the firm level characteristics for the backdating and implicated samples come from different distributions. Consistent with the differences in means reported in Table II, Market Cap, Excess Stock Return, as well as compensation variables, do come from significantly different distributions for the two groups of companies.

\textsuperscript{201} For more information about logit regressions, also known as logistic regressions, see \textsc{William Green}, \textit{Econometric Analysis} (5th ed. 2002).
ket Cap variable is significantly negative in both models at the 5% level, confirming the univariate result that smaller firms are over-represented in the backdating sample (all statistical significances are based on p-values). This result is consistent with the notion that smaller firms are more likely to violate regulations. The other significant variables are CEO Tenure and Option Proportion (both positive at the 1% level) indicating, perhaps not surprisingly, that longer CEO tenure and a greater proportion of option compensation are both associated with increased likelihood of backdating.

Table IV is similar to Table III, except that the dependent variable is a dummy variable that takes on a value of 1 if the firm is investigated by the SEC or the DOJ (i.e., the firm is in the implicated sample). The sample includes the 6,297 firms in our original sample and the implicated firms that were not in the original sample. Data availability for the variables reduces the sample size to 1,228 firms for Model 1 (55 of which are Implicated Firms) and 1,147 firms for Model 2 (49 of which are Implicated Firms). The results are again generally consistent with the univariate results. The key result is that the Market Cap variable is now significantly positive in both models (at the 5% level), indicating that prosecutors favor targeting larger-than-average firms. This result contrasts with the result in Table III that firms engaged in backdating are generally smaller than average. Taken together, the results of Tables III and IV show that although firms that engage in options backdating are smaller than average in size, the investigated ones are larger than average. Thus, any exemption policy for smaller firms for options backdating should not be based on observed investigations or prosecutions, because investigators and prosecutors have pursued larger firms despite smaller firms being the more likely violators.

Consistent with the notion that firms with poorer corporate governance are more likely to be implicated, the results show that Implicated Firms have fewer independent directors, and that longer serving CEOs are more likely to be implicated in backdating. The results also show that CEOs who earn more and who receive most of their compensation in option grants are more likely to be subjects of investigation.

In Table V we show a logit regression to directly compare backdating firms to Implicated Firms in order to check whether the Implicated Firms are larger than backdating firms. The table reports the results from a logit regression where the dependent variable is a dummy variable that takes on a value of 1 if the firm is investigated by the SEC or the DOJ. The sample includes only firms that are repre-
2012] SHOULD SIZE MATTER WHEN REGULATING FIRMS?

presented in the backdating and implicated samples. As before, Model 1 uses the G-Index as a proxy for governance, while Model 2 uses the E-Index as a proxy for entrenchment. For Model 1, we had 101 backdated firms and 55 Implicated Firms for which all the data variables were available; the corresponding numbers for Model 2 were 96 and 49, respectively.

Once again the results are broadly consistent with the univariate results in Table II. The size variable Market Cap is significantly positive at the 5% level in both models, lending support for the notion that implicated firms are larger in size than backdating firms. This result suggests that despite smaller firms being over-represented in the backdating sample relative to the all firms sample, backdating firms that are investigated or prosecuted are the relatively larger ones. This implies that observed investigations therefore cannot be relied on to conclude that smaller firms are less likely to violate regulations, or to make policy prescriptions about exempting small firms from regulations.

CONCLUSION

The usual problem with obtaining this kind of relevant data is that violations of regulations are not usually observable independent of investigations. The options backdating practice provides a unique setting in which we were able to statistically predict, by using stock price data, which firms were likely engaging in backdating. By empirically analyzing this practice, this paper presents a data point relevant to policymakers regarding whether small firms should necessarily be exempted from financial regulations or their enforcement on the basis of observed violations.

In the context of backdating, our results collectively indicate that smaller firms are more likely to engage in illicit behavior than larger firms, and that prosecutorial motives make the observed investigations and prosecutions unreliable indicators for the purpose of making policy recommendations regarding exemptions of small firms from regulation. It is important to note that what drives the prosecutorial motive to target larger firms is not important to our conclusions. Regardless of whether it is moral hazard, considerations of social welfare, or some other reason that lies behind motives for investigations, the fact that larger firms are more likely to be targeted is sufficient to caution against using the data on investigations and prosecutions for policy prescriptions.

Our results indicate smaller firms are overly represented in the backdating sample and firm size, size of compensation, and financial
performance are significant determinants of whether a firm will be investigated or prosecuted. These results show that small firms, although not exempted from regulations prohibiting undisclosed backdating, and although not less culpable than large firms, have been spared the bulk of enforcement. The results also provide evidence that the regulations have been enforced against larger firms disproportionately to their relative culpability. Our study has not proven that prosecutorial attention is misallocated with respect to small and large backdating firms, but by showing that small firms are simultaneously more likely to engage in backdating but less likely to be investigated or prosecuted, it has provided some of the data needed to prove this hypothesis. In our view, inquiry into the economic harm caused by small firms’ backdating practices, inquiry into the harm caused by large firms’ backdating practices,202 and inquiry into the costs of prosecution of small and large firms, respectively, might be undertaken to complete the picture and to help determine whether, as a matter of policy, prosecutorial attention should be shifted from large firms to small firms. In addition, the organizational incentives for prosecutors to prosecute large firms suggest that, prosecutorial attention is likely currently misallocated. In effecting an increased focus on small firms, these misaligned incentives will pose a substantial obstacle.

With respect to regulatory exemptions for small firms as well as the reporting requirements of the Sarbanes-Oxley Act, our findings have immediate policy implications. First, given that small firms have engaged in illegal backdating to a greater extent than larger firms, the wisdom of providing smaller firms various exemptions from legal reporting requirements should be questioned. We suggest a case-by-case approach, rather than granting blanket exemptions to all small firms. We recommend that all small firms be required to comply with all reporting provisions of SOX, unless they can demonstrate why they should be exempted by detailing all costs and benefits of reporting. We expect, however, that any firms who have restated their financial statements, have backdated, timed, or not reported their option grants in a timely fashion, or have not complied with any existing regulations, will not be granted an exemption.

Second, although the Sarbanes-Oxley Act has brought greater transparency to executive compensation by requiring a maximum two-
day reporting delay, it is important that this requirement be strictly enforced. Administrative penalties for late reporting are appropriate policy tools here. Escalating penalties for repeat offenders can further help identify and appropriately sanction systematic violators.

Finally, we suggest that, given the reluctance of prosecutors to investigate smaller firms, all regulatory legislation needs to be written in a self-enforcing manner. There are a variety of policy tools to achieve this objective. More detailed and more timely disclosures enabling greater transparency are important dimensions of self-enforcement. An example of such disclosure is whether the firm has been subjected to any administrative penalties for late reporting or other violations, or whether it has been granted an exemption from reporting requirements. A second policy tool is the private right of action. Greater disclosure combined with a private right of action will provide competition to prosecutors by allowing injured third parties to bring civil complaints. Finally, a bounty program that shares the administrative penalties with private parties for identifying potential violations could provide an additional self-enforcement mechanism.
TABLE I: DIFFERENCES IN CHARACTERISTICS BETWEEN ALL, BACKDATING, AND IMPLICATED FIRMS203

This table reports univariate results from comparing differences in various firm level characteristics between backdating and Implicated Firm relative to all firms. Panel A provides the variable means for all firms. Panel B provides the variables for backdating firms and the difference in the variable means between backdating firms and all firms, and their significances; Panel C does the same for Implicated Firms. G-Index is the average corporate governance index and E-Index is the average entrenchment index with a higher number indicating poorer governance or entrenchment. ChmCEO is the average of a dummy variable that takes on a value of one if the CEO is also the chairman of the board of the firm. Ind. Directors is the average proportion of board members who are considered independent (non-affiliated). CEO Tenure is the number of years the CEO has held her current position at a given firm. Market Cap is the natural logarithm of average calendar year end market capitalization in millions of dollars during 2002–2005. Excess Stock Return is the risk-adjusted average monthly stock return from January 1998 to December 2005. The risk-adjusted returns are calculated for each firm by subtracting from its monthly stock return, a portfolio return matched to each firm’s book-to-market, size and momentum characteristics as in Daniel et al. (1997). Total Compensation is the natural logarithm of the average annual total CEO compensation and Option Compensation is the natural logarithm of the average Black-Scholes value of the outstanding options granted to the CEO, both in thousands of dollars. Option Proportion is the natural logarithm of the percentage of the value of total compensation an executive received in the form of option grants, based on its Black-Scholes value. The t-statistics are computed assuming unequal variances for the two groups of companies, based on its Black-Scholes value. The superscripts ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

<table>
<thead>
<tr>
<th></th>
<th>Panel A: All Firms</th>
<th>Panel B: Backdating Firms</th>
<th>Panel C: Implicated Firms</th>
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<tr>
<td></td>
<td>Mean</td>
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<td>2.33</td>
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203. See supra notes 197–198, and accompanying text.
SHOULD SIZE MATTER WHEN REGULATING FIRMS?

TABLE II: DIFFERENCES IN CHARACTERISTICS BETWEEN BACKDATING AND IMPLICATED FIRMS

This table reports differences in various firm level characteristics between implicated and backdating firms. G-Index is the average corporate governance index and E-Index is the average entrenchment index with a higher number indicating poorer governance or entrenchment. ChmCEO is the average of a dummy variable that takes on a value of one if the CEO is also the chairman of the board of the firm. Ind. Directors is the average proportion of board members who are considered independent (non-affiliated). CEO Tenure is the number of years the CEO has held her current position at a given firm. Market Cap is the natural logarithm of average calendar year end market capitalization in millions of dollars during 2002–2005. Excess Stock Return is the risk-adjusted average monthly stock return from January 1998 to December 2005. The risk-adjusted returns are calculated for each firm by subtracting from its monthly stock return a portfolio return matched to each firm’s book-to-market, size, and momentum characteristics as in Daniel et al. (1997). Total Compensation is the natural logarithm of the average annual total CEO compensation and Option Compensation is the natural logarithm of the average Black-Scholes value of the outstanding options granted to the CEO, both in thousands of dollars. Option Proportion is the natural logarithm of the percentage of the value of total compensation an executive received in the form of option grants, based on its Black-Scholes value. The t-statistics are computed assuming unequal variances for the two groups of companies. The superscripts *** and ** indicate significance at the 1%, 5%, and 10% levels, respectively.

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<th>Backdating</th>
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204. See supra notes 199–200, and accompanying text.
TABLE III: REGRESSION RESULTS: CHARACTERISTICS OF BACKDATING FIRMS\textsuperscript{205}

This table reports results from a logit regression where the dependent variable is a dummy variable that takes on a value of one if the firm is in the backdating sample. *G-Index* is the average corporate governance index and *E-Index* is the average entrenchment index with a higher number indicating poorer governance or entrenchment. *ChmCEO* is the average of a dummy variable that takes on a value of one if the CEO is also the chairman of the board of the firm. *Ind. Directors* is the average proportion of board members who are considered independent (non-affiliated). *CEO Tenure* is the number of years the CEO has held her current position at a given firm. *Market Cap* is the natural logarithm of average calendar year end market capitalization in millions of dollars during 2002–2005. *Excess Stock Return* is the risk-adjusted average monthly stock return from January 1998 to December 2005. The risk-adjusted returns are calculated for each firm by subtracting from its monthly stock return, a portfolio return matched to each firm’s book-to-market, size, and momentum characteristics as in Daniel et al. (1997). *Scaled Total Compensation* is ratio of Total compensation to *Market Cap*. *Total Compensation* is the natural logarithm of the average annual total CEO compensation and *Option Compensation* is the natural logarithm of the average Black-Scholes value of the outstanding options granted to the CEO, both in thousands of dollars. *Option Proportion* is the natural logarithm of the percentage of the value of total compensation an executive received in the form of option grants, based on its Black-Scholes value. The superscripts ‘\(*\)’, ‘\(**\)’, and ‘\(***\)’ indicate significance at the 1%, 5%, and 10% levels, respectively, based on p-values.

<table>
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<tr>
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<td>G-Index</td>
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</tbody>
</table>

*Source: Market Cap, Stock Returns: CRSP; G-Index: Metrick; E-Index: Bebchuk; ChmCEO Dummy, Ind Directors, CEO Tenure: RiskMetrics; Compensation variables: ExecuComp; Option grant dates: Thomson Reuters Financial.*

\textsuperscript{205} See supra note pp. 35–36 and accompanying text.
2012] SHOULD SIZE MATTER WHEN REGULATING FIRMS?  43

TABLE IV: REGRESSION RESULTS: CHARACTERISTICS OF IMPLICATED FIRMS

This table reports results from a logit regression where the dependent variable is a dummy variable that takes on a value of one if the firm is in the implicated sample. \( G-Index \) is the average corporate governance index and \( E-Index \) is the average entrenchment index with a higher number indicating poorer governance or entrenchment. \( ChmCEO \) is the average of a dummy variable that takes on a value of one if the CEO is also the chairman of the board of the firm. \( Ind. Directors \) is the average proportion of board members who are considered independent (non-affiliated). \( CEO \) Tenure is the number of years the CEO has held her current position at a given firm. \( Market \) Cap is the natural logarithm of average calendar year end market capitalization in millions of dollars during 2002–2005. \( Excess \) Stock Return is the risk-adjusted average monthly stock return from January 1998 to December 2005. The risk-adjusted returns are calculated for each firm by subtracting from its monthly stock return, a portfolio return matched to each firm’s book-to-market, size, and momentum characteristics as in Daniel et al. (1997). \( Scaled \) Total Compensation is ratio of Total compensation to \( Market \) Cap. \( Total \) Compensation is the natural logarithm of the average annual total CEO compensation and \( Option \) Compensation is the natural logarithm of the average Black-Scholes value of the outstanding options granted to the CEO, both in thousands of dollars. \( Option \) Proportion is the natural logarithm of the percentage of the value of total compensation an executive received in the form of option grants, based on its Black-Scholes value. The superscripts ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively, based on p-values.

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Observations</td>
<td>1228</td>
<td>1147</td>
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</tbody>
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<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-3.092*</td>
<td>-4.115**</td>
</tr>
<tr>
<td>Market Cap</td>
<td>0.388**</td>
<td>0.399**</td>
</tr>
<tr>
<td>G-Index</td>
<td>-0.134</td>
<td></td>
</tr>
<tr>
<td>E-Index</td>
<td></td>
<td>-0.176</td>
</tr>
<tr>
<td>ChmCEO</td>
<td>-0.689*</td>
<td>-0.672*</td>
</tr>
<tr>
<td>Ind Directors</td>
<td>-1.608</td>
<td>-1.931*</td>
</tr>
<tr>
<td>CEO Tenure</td>
<td>0.055***</td>
<td>0.063***</td>
</tr>
<tr>
<td>Excess Stock Return</td>
<td>16.762</td>
<td>23.219**</td>
</tr>
<tr>
<td>Scaled Total Compensation</td>
<td>0.577**</td>
<td>0.641**</td>
</tr>
<tr>
<td>Option Proportion</td>
<td>1.798***</td>
<td>1.557***</td>
</tr>
</tbody>
</table>


206. See supra note p. 36.
**TABLE V: Regression Results: Characteristics of Implicated Versus Backdating Firms**

This table reports results from a logit regression where the dependent variable is a dummy variable that takes on a value of one if the firm is investigated by the SEC or the DOJ. We restrict the sample only to firms that we have identified as engaged in backdating. *G-Index* is the average corporate governance index and *E-Index* is the average entrenchment index with a higher number indicating poorer governance or entrenchment. *ChmCEO* is the average of a dummy variable that takes on a value of one if the CEO is also the chairman of the board of the firm. *Ind. Directors* is the average proportion of board members who are considered independent (non-affiliated). *CEO Tenure* is the number of years the CEO has held her current position at a given firm. *Market Cap* is the natural logarithm of average calendar year end market capitalization in millions of dollars during 2002–2005. *Excess Stock Return* is the risk-adjusted average monthly stock return from January 1998 to December 2005. The risk-adjusted returns are calculated for each firm by subtracting from its monthly stock return, a portfolio return matched to each firm’s book-to-market, size, and momentum characteristics as in Daniel et al. (1997). *Scaled Total Compensation* is ratio of Total compensation to *Market Cap*. *Total Compensation* is the natural logarithm of the average annual total CEO compensation and *Option Compensation* is the natural logarithm of the average Black-Scholes value of the outstanding options granted to the CEO, both in thousands of dollars. *Option Proportion* is the natural logarithm of the percentage of the value of total compensation an executive received in the form of option grants, based on its Black-Scholes value. The superscripts ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively, based on p-values.

<table>
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<tr>
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</thead>
<tbody>
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<td>Number of Observations</td>
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<td>145</td>
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<tr>
<td>Intercept</td>
<td>-1.748</td>
<td>-2.357</td>
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<tr>
<td>Market Cap</td>
<td><strong>0.543</strong></td>
<td><strong>0.567</strong></td>
</tr>
<tr>
<td>G-Index</td>
<td>-0.096</td>
<td></td>
</tr>
<tr>
<td>E-Index</td>
<td></td>
<td>-0.021</td>
</tr>
<tr>
<td>ChmCEO</td>
<td><strong>-1.533</strong></td>
<td><strong>-1.340</strong></td>
</tr>
<tr>
<td>Ind Directors</td>
<td>-2.036</td>
<td>-3.209*</td>
</tr>
<tr>
<td>CEO Tenure</td>
<td><strong>0.053</strong></td>
<td><strong>0.0470</strong></td>
</tr>
<tr>
<td>Excess Stock Return</td>
<td>25.575</td>
<td>35.468*</td>
</tr>
<tr>
<td>Scaled Total Compensation</td>
<td>0.545</td>
<td>0.601*</td>
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<tr>
<td>Option Proportion</td>
<td><strong>1.629</strong></td>
<td><strong>1.339</strong></td>
</tr>
</tbody>
</table>

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207. See supra note p. 36–37.