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# Securities Class Actions Compared to Derivative Lawsuits: Evidence from the Stock Option Backdating Litigation on their Relative Disciplining of Fraudster Executives

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## I. Introduction

The disclosure of stock option backdating—where in the money grants of stock options were made under the guise of them purportedly being at the money grants of stock options, using backdated documents to conceal that they were in the money grants of stock options[1]—precipitated substantial litigation. Stock option backdating research has been published on its benefit to executives and detriment to shareholders (Narayanan et al., 2007), the stock market reactions to the disclosure of the stock option backdating (Jain et al., 2010; Bernile and Jarrell 2009; Bernile et al., 2013), and shareholder voting subsequent to the disclosure of stock option backdating (Ertimur et al., 2012). However, there has not been published a complete empirical investigation of the stock option backdating litigation ("SOBL").

SOBL is unique in that it was a genre of private litigation that was not completely dominated by securities class actions the way typical financial reporting litigation is. Conversely, the practice was not dominated by derivative lawsuits.[2] For example, alleged breaches of directors' fiduciary duties of care and loyalty under state law are actionable only as derivative lawsuits. About thirty-five percent of the SOBL litigations included private securities class actions. The rest of the SOBL litigations were solely derivative lawsuits. This fact provides a unique opportunity to analyze their relative differences in addressing executive stock option backdating fraud.

If reputational constraint is insufficient to deter fraud, including stock option backdating fraud, then effective law enforcement is necessary, both to specifically and generally deter fraud (Prentice and Donelson 2010). Since the government's resources to address executive fraud are insufficient, private sector law enforcement is also necessary. Which of these private sector accountability mechanisms – derivative lawsuits or securities class actions—was more effective? A comparison of these two aspects of the SOBL reveals important, timely insights, especially concerning the effectiveness of securities class actions as an ex post disciplining mechanism deterring future occurrences of executive fraud.

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[1] Only an "in the money" stock option has immediately realizable value, and thus it is far more lucrative for the executive than an "at the money" stock option. For example, if a hypothetical public company's stock is currently trading at $25, and an executive is given an option to buy over a stipulated future period of time 1,000,000 shares at $25, then that would be "at the money." If, however, the option was to buy shares at $20, $10, or any other dollar amount less than $25, then that would be "in the money."

[2] To address the misconduct associated with the practice of backdating stock options, shareholders could bring a securities class action. Such suit would be brought against the company, its directors and management, alleging that stock option backdating constituted a securities law violation, particularly of Section 10(b) of the Securities Exchange Act, which prohibits deceptive nondisclosures or misstatements. Shareholders also could bring a derivative lawsuit, asserting that by stock option backdating, directors breached their fiduciary duties. A main difference between these two shareholder private actions is that a derivative lawsuit is brought by a shareholder on behalf of the corporation. Any recovery goes to the corporation. Conversely, damages in a securities class action are awarded directly to the shareholders. Damages awarded in a Section 10(b) action would equal the amount of economic injury during the class period suffered by the class members due to the deception.

Private securities class actions have been disparaged by companies, executives, and their advocates. Yet, Choi and Pritchard (2014) found evidence suggesting that private securities class actions may be more effective than Securities and Exchange Commission ("SEC") enforcement actions in forcing the departure of executives implicated in fraud. It thus seems possible that private securities class actions also could be more effective than derivative lawsuits in forcing the departure of executives implicated in fraud. In addition, possibly the more successful the private securities class action, in terms of obtaining a larger settlement for the investors, the more effective it will be in forcing the departure of executives implicated in fraud.

These expectations were borne out. The evidence suggests that forced executive departures occur more as a result of private securities class actions than as a result of derivative lawsuits, and that executive departures are positively associated with the amount of money paid by the defendants to the shareholders.

These findings are timely. While the *Halliburton*[3] defendants' challenge to the fraud-on-the-market presumption that was established in 1988 (through *Basic Inc. v. Levinson*[4]) was substantially rejected by the June 23, 2014 decision[5] of the U.S. Supreme Court, future attempts to undercut the viability of private securities class actions are expected. *Halliburton* is only one battle in a war on private securities class actions. Judicial attacks, in addition to *Halliburton*, include *Central Bank of Denver*, *Gustafson v. Alloyd*, *Dura Pharmaceuticals*, and *Stoneridge*. The main legislative challenges have been the Private Securities Litigation Reform Act of 1995 ("PSLRA") and the Securities Litigation Uniform Standards Act ("SLUSA").[6]

The remainder of the paper proceeds as follows. Section II draws from prior literature to develop the hypotheses for the contrasts that will be found between the SOBL and typical (i.e., that does not include allegations of stock option backdating) financial reporting litigation, the contrasts that will be found

[3] *Halliburton Co. v. Erica P. John Fund, Inc.*, 134 S. Ct. 2398 (2014).

[4] 485 U.S. 224 (1988).

[5] *See Halliburton*, 134 S. Ct. at 2403-404. The *Halliburton* Court declined to reverse the *Basic Inc. v. Levinson* fraud on the market doctrine. See *Ibid.* Thus, investors may still meet their reliance (on the defendant's misrepresentation in deciding to buy or sell a company's stock) requirement via the presumption that if the stock traded in an efficient market then all public, material information—including material misrepresentations—was reflected in the stock price. The one concession to the *Halliburton* defendants made by the Court is that defendants now may attempt to rebut this presumption by presenting evidence at the class certification stage, of a lack of price impact (of the defendants' material misrepresentations). See *Ibid.* at 2404. Before *Halliburton*, they had to wait until after the class certification stage to present such evidence. For more detail, see Crumbley and Cheng, 2016.

[6] In *Central Bank of Denver, N.A. v. First Interstate Bank of Denver*, the Court eliminated aiding and abetting liability in private securities class actions. See *N.A.*, 511 U.S. 164, 191 (1994). In *Gustafson v. Alloyd*, recission (voiding the transaction and returning the investor's money) was eliminated except for purchasers in a public offering. 513 U.S. 561 (1995). In *Dura Pharmaceuticals, Inc. v. Broudo*, the Court held that it is not enough to show an inflated stock price; plaintiffs must show that the misrepresentation proximately caused their economic loss. 544 U.S. 336, 342-343 (2005). In *Stoneridge Inv. Partners, LLC v. Scientific-Atlanta, Inc.*, the Court ruled that primary securities fraud liability should be narrowly imposed only upon those making direct or attributable fraudulent statements. 552 U.S. 148, 157 (2008). The PSLRA created a new federal court litigation structure requiring the initial important motion—the motion to dismiss—to be decided without allowing discovery to the plaintiffs. The plaintiffs also were required to meet a more stringent standard in order to survive the motion to dismiss—showing facts giving rise to a strong inference that the defendant acted with the intent to defraud. The SLUSA closed the state courts—which had been more favorable to plaintiffs—to almost all private securities class actions. Recent trends in private securities class actions show the cumulative effect of these cases and statutes. There has been a substantial reduction, since 2008, in the filings of private securities class actions (Cornerstone Research 2014). Also, the fewest settlements of private securities class actions, since 1995, were in 2012, and 2013 (Comolli and Starykh 2014).

within the SOBL between the derivative lawsuit-only SOBL and the SOBL that includes securities class actions, and the characteristics that are associated with the settlement amounts in the SOBL securities class actions. Section III describes the data and its sources. The empirical results are shown in Section 4. Conclusion, limitations and implications are discussed in Section V.

## II. Prior Literature and the Development of the Arguments of the Hypotheses

Yermack (1997) noted that stock prices tended to increase shortly after the issuance of stock options to executives. He speculated that this increase was due to the issuance of stock options when executives already knew of good (stock price increasing) news about their companies that had not yet been disclosed to the public.[7] Lie (2005) found that the overall stock market performed worse than normal immediately before the grants of stock options, and better than normal immediately after the grants of stock options. Given that company insiders do not have a comparative advantage in predicting the overall stock market, Lie attributed this apparent foresight to the selection of option grant dates with the benefit of actual hindsight.

Heron and Lie (2007) found that most, but not all, of the stock option backdating ended after August 29, 2002, when an SEC requirement that option grants must be reported within two business days took effect (SEC 2002). Heron and Lie (2009) estimated that twenty-three percent of all unscheduled and at-the-money option grants to top executives during the period 1996 to August 28, 2002 were backdated.

There are several consequences that flow from these facts. Since stock options, at the time they were granted, were in the money, and the companies' financial statements indicated they were at the money, compensation expense was understated, causing net income to be overstated.[8] This scenario suggests that a securities class action may be appropriate.[9] However, often the amount of understatement of compensation expense was not clearly material to the financial statements. Also, as noted by Bernile and Jarrell (2009), stock option backdating has a relatively small effect on cash flows.

Thus, this situation suggests that a derivative lawsuit may be appropriate, since an executive grasping more compensation for himself and being untruthful about it seems to be committing fraud and violating his fiduciary duty to the corporation. On the other hand, if Heron and Lie (2009) are correct that almost a

[7] This technique is known as "spring loading."

[8] Under the financial reporting standards in effect before late 2005 (APB 25 and SFAS 123), companies could avoid reporting any immediate expense, at the time of the grant, if it was at the money. See Accounting for Stock Issued to Employees, Opinion No. 25 (Accounting Principles Board 1973); Accounting for Stock-based Compensation, Statement No. 123 (Financial Accounting Standards Board 1995). In other words, they could recognize the intrinsic value, which would be zero. These standards were changed by SFAS 123R, which mandated the fair value method, instead of the intrinsic value method, for measuring expense upon the grant of an employee stock option. *See* Share-Based Payment, Statement No. 123R (Financial Accounting Standards Board 2004). IFRS 2, which, although not identical, is similar to SFAS 123R. See Share-Based Payment, IFRS 2 (International Accounting Standards Board 2004). It became effective in early 2005 for companies that follow IFRS instead of U.S. GAAP. See *Ibid.*

[9] In class actions, plaintiff shareholders represent both their own interests and the interests of the other shareholder class members who have allegedly been harmed, usually by allegedly materially incorrect, fraudulent, financial reporting. In a class action, the class receives the recovery if the suit is successful or the parties reach a settlement. See Crumbley and Cheng, 2016. In a derivative lawsuit, shareholders bring the lawsuit on the behalf of the corporation since the corporation allegedly is the injured party and thus the real party in interest, allegedly harmed by being defrauded by certain executives. In a shareholder derivative lawsuit, if it is successful, the recovery, if any, goes only to the corporation. Many derivative lawsuits, even if "won," obtain no monetary recovery but just corporate governance reforms or some other kind of nonmonetary result. Additionally, a derivative action is actually two causes of action. First is an action to demand that the Board of Directors remedy the executives' fraud or, in some situations, to persuade the court that making such a demand is excused because it would be an act of futility. For example, the CEO was a stock option backdating fraudster and is also the Chairman of the Board of Directors, and perhaps others on the Board also were stock option backdating fraudsters.

quarter of stock options were backdated, perhaps the perception in the business community was that this was routine, innocent behavior, lacking fraudulent intent. Also, directors sitting on the boards likely knew such behavior was going on because it was so widespread. Many of them were themselves similarly helping themselves to extra compensation by stock option backdating. Thus, they were unlikely, after receiving a demand from a shareholder, to authorize the corporation to bring suit against the wrongdoers, since in many cases the directors themselves were wrongdoers. Thus, a shareholder might have to overcome the business judgment rule to prove demand futility, or that the board's rejection of the demand was wrongful. These are substantial barriers to successful prosecution of a derivative lawsuit.

The preceding paragraph suggests that, in spite of the difficulties, a securities class action to address stock option backdating may therefore be attractive to shareholders, since the successful prosecution of a stock option backdating derivative lawsuit also is difficult. In addition to the advantage (compared to a derivative lawsuit) of a possible monetary recovery direct to the shareholders, Choi and Pritchard (2014) found evidence that securities class actions may be more effective at forcing the resignation of executives implicated in fraud, and hence deterring the future occurrence of fraud, compared to SEC enforcement actions. Thus, it may similarly be found in this study that securities class actions are more effective at forcing the resignation of executives implicated in fraud, and hence deterring fraud, compared to derivative lawsuits.

Forcing out the executives implicated in backdating may appeal to a shareholder who has already sold his stock and may desire, in addition to cash, retribution against the wrongdoers. It also may appeal to individuals or institutions that continue to hold the stock and wish to improve the future performance of the corporation by purging the implicated executives, since the purported corporate governance reforms obtained in derivative lawsuits often are not meaningful (Erickson 2011).

What one reasonably surmises is that stock option backdating is not clearly more appropriately addressed by a derivative lawsuit than by a securities class action.[10] Thus, among the 151 SOBL observations, some include securities class actions (n=53), while others do not (n=98).

The first stage of the empirical investigation examines the context of SOBL. Typical financial reporting litigation (lacking any stock option backdating allegations) is contrasted with the 151 SOBL observations. Such an empirical comparison has not previously been undertaken. However, there has been substantial research on the characteristics associated with financial reporting litigation and, of particular importance, auditor litigation. Characteristics found associated with auditors being named (or not being named) defendants in large samples of financial reporting litigation should be negatively associated with the 151 SOBL observations, because the SOBL is, as discussed above, not always clearly characterized by materially misstated financial reporting, the condition precedent for allegedly deficient auditing.

Bankruptcy and fraud (operationalized by an SEC and/or DOJ prosecution) have both been found to be positively associated with the auditor being named a defendant in financial reporting litigation (Habib et

[10] Abbott (2009) posits that the derivative lawsuit better serves the interests of the company than a shareholder's direct claim. This view misapprehends the purpose of the law, which is to serve the interests of all who have been wronged—not just the corporation—and to deter future wrongdoing. A derivative lawsuit cannot directly compensate or offer redress for a shareholder who no longer owns stock in the corporation, by obtaining money for the corporation and by the adoption of corporate governance reforms. Second, if a securities class action is more effective at forcing out executives implicated in stock option backdating, then it is likely more effective at deterrence of future fraud, arguably more effective than the frequently obtained corporate governance reforms which routinely lack substance since they often merely have the corporation promise to henceforth do what it has no alternative but to do anyway: comply with the law.

al., 2014). Restatements[11] of audited annual financial statements—where one of the implicated accounting issues is improper revenue recognition—are also associated with the auditor being named a defendant in the financial reporting litigation. (Demirkan and Fuerman 2014). Thus, these are all expected to be negatively associated with the SOBL.

In prior financial reporting research, the norm is to include for standardization the kind of auditor and company size (Bernile and Jarrell 2009). Choi et al., (2013) found that the companies subject to backdating investigations were much more likely to be in the computer hardware and software industries. Thus, computer industries are expected to be positively associated with the SOBL. Intuitively, restatements—where one of the implicated accounting issues is stock option backdating—are expected to be positively associated with the SOBL. Also is intuitively, the amount of the settlement paid by the defendants to the shareholders is expected to be negatively associated with the SOBL, since the majority of the SOBL observations are derivative lawsuits without a parallel securities class action, and defendants in derivative lawsuits do not pay any money to the shareholders. Finally, also logically a company being a U.S. company is expected to be positively associated with the SOBL, since the total compensation of U.S. executives is more substantially comprised of stock options (Coffee 2005). This fact is partly because stock options, if they are granted at the money, are an exception to the Internal Revenue Code Section 162(m) bar on compensation paid to executive officers in excess of one million dollars being tax deductible.[12]

The second stage of the empirical analysis is to explore within the 151 SOBL observations. The fifty-three SOBL observations that include a securities class action are compared to the ninety-eight SOBL observations that do not include a securities class action. This analysis is done with several subsets since the available data varies. The first within the SOBL analysis focuses on the 108 SOBL observations where a restatement (with one of the implicated accounting issues being stock option backdating) occurred. The amount of the settlement of stock option derivative lawsuits (and possibly other aspects of the SOBL) may be a function of the amount of stock option backdating that occurred: "The scale of the settlements is proportionate to the scale of the backdating problems at UnitedHealth, which had forced the company to restate $1.13 billion in earnings over a twelve-year period" (LaCroix 2007). The LaCroix variable is added to the variables described in the immediately preceding paragraph, but there is no expectation as to whether it will be associated with the derivative lawsuit (only SOBL). Bankruptcy, fraud, revenue restatements, and auditor defendants are expected to be negatively associated with the derivative lawsuit-only SOBL, based on the logic that these are all characteristics positively associated with normal financial reporting securities class actions.

Bernile and Jarrell (2009) found the odds rank for 129 companies that disclosed stock option backdating to be associated with the severity of the stock market reaction upon the disclosure of the stock option backdating, as well as the likelihood of commencement of litigation. This discovery extended the analysis of six companies described by Forelle (2006) and depicted in the *Wall Street Journal* (2006) that was the basis for the *Wall Street Journal* article that brought the first substantial general media attention to the stock option backdating phenomenon (Forelle and Bandler 2006). For example, Affiliated Computer had the lowest ($129^{th}$) odds rank and therefore the concomitant most likely probability of engaging in stock option backdating. According to Forelle and Bandler (2006), the odds against the

[11] A restatement is where a public company disavows its previously issued financial statements and reissues financial statements to replace the originally issued financial statements.

[12] I.R.C. Section 162 (m) (2006). A publicly held corporation is not able to deduct compensation to a covered employee to the extent that the compensation exceeds one million dollars per tax year. Performance based compensation is an exception to the one million dollar cap. A stock option is regarded as performance based compensation if the amount of compensation that could be received is based solely on an increase in the value of the stock after the date of the grant (in other words, it cannot be an "in the money" stock option). There are additional conditions, but these conditions are the salient ones for purposes of this paper.

Affiliated Computer stock option grant dates being random and thus *not* indicative of stock option backdating are 300 billion to one.

The second within-SOBL analysis focuses on the 104 SOBL observations where the Bernile and Jarrell (2009) odds rank data are available.[13] From the discussion in the immediately preceding paragraph, it seems that the odds rank may be a significant variable for contrasting between the SOBL observations with securities class actions associated with them versus the derivative lawsuit-only SOBL observations. However, Comolli et al., (2007) disagree with the odds rank approach, asserting that it is misleading and not necessarily indicative of stock option backdating. Also, Judge Alsup held that even if stock option backdating is proven, that fact is not sufficient to prove fraud, [14] and fraud (either recklessness or knowing) is a necessary element to successfully assert a claim brought under Section 10(b) of the Securities Exchange Act. The Bernile and Jarrell (2009) odds rank variable is added to the variables described above, but there is no expectation as to whether it will be associated with the derivative lawsuit-only SOBL.

The third within-SOBL analysis is performed on the full set of 151 SOBL observations. As discussed above, Choi and Pritchard (2014) found evidence that securities class actions may be more effective at forcing the resignation of executives implicated in fraud, compared to SEC enforcement actions. Thus, it is expected that the departure of executives will be negatively associated with the ninety-eight SOBL observations that do not include a securities class action.

The last investigation is for the purpose of determining what characteristics are associated with the amount of money paid to the stockholders in the securities class actions. As posited above, shareholders would prefer a securities class action to a derivative lawsuit, in response to stock option backdating, because 1) only a securities class action can provide them money; and 2) a securities class action is more likely to force the departure of executives. It is reasonable to assume that *more* money extracted in a settlement will constitute a *more* effective mechanism for forcing the resignation of executives. The greater the money extracted in a settlement, the more the current shareholders suffer from their corporation having to pay out the settlement to shareholders, many of whom will be former shareholders by the time of the settlement. Typically, some of the largest current shareholders are the institutional investors, the new executives and directors, and the remaining innocent (of stock option backdating) executives and directors. They will endeavor to force out the implicated executives as a function of the magnitude of the settlement amount paid to the plaintiff shareholders. Thus, it is expected that the departure of executives will be positively associated with the amount of money paid to the stockholders.

## III. The Data

From Securities Class Action Services[15] ("SCAS"), fifty-three stock option backdating securities class actions were found, filed from March 5, 2002 through November 5, 2008. During this same period, 1,135 typical financial reporting securities class action lawsuits (that did not involve stock option backdating) were filed. These actions also were found in SCAS. Audit Analytics was then searched to locate ninety-eight stock option backdating derivative lawsuits that did not have parallel securities class actions. The total sample comprises 1,286 observations.

[13] Thanks to Gennaro Bernile for providing this odds rank data and allowing its use.

[14] *In re CNET Networks, Inc. Shareholder Derivative Litigation*, No. 3:06-cv-3817 (N.D. Cal. April 11, 2007, pages 21-23).

[15] SCAS is the most comprehensive source for private securities class actions. It is the only source that includes (in addition to filings in federal courts in the United States) filings in the state courts in the United States, and filings in the courts of other countries.

Savett (2013) provides details of thirty-nine stock option backdating class actions.[16] In Table 1, details about an additional fourteen stock option backdating class actions overlooked by Savett (2013), the business press, and other researchers, are provided. Some of the additional fourteen are federal class actions whose complaints (original or amended) allege stock option backdating. Others are state class actions, which are often overlooked by researchers and the financial press.[17] Other class actions have subsequently (usually several years later) issued SEC enforcement releases (usually, but not always, Accounting and Auditing Enforcement Releases) related to the same class period and allegations of the class actions. These government prosecutions (some by the SEC, some by the Department of Justice ["DOJ"], and some by both) are detailed on an SEC web site called Spotlight on Stock Options Backdating.

The data on restatements were obtained by first determining (for the class actions) the class period of the settlement notice or (if no settlement) the last operative complaint. Settlement notices and complaints were obtained from SCAS, Securities Class Action Clearinghouse, Audit Analytics, D&O Diary, Public Access to Court Electronic Records, or the Internet. Audit Analytics was then searched to determine which lawsuits had related restatements[18] (correction of an error or a fraud) and the specific accounting issues implicated in each restatement. The decision rule was as follows. If a restatement, one of which was a restatement of audited annual financial statements, was located, and the period of restatement overlapped the class period, then it was ruled a restatement related to that lawsuit. For the ninety-eight SOBL derivative lawsuits, which have no class period, the period of alleged wrongdoing described in the litigation documents was substituted for the class period.

The sources in the immediately preceding paragraph also were used to determine whether the auditor was named a defendant. Audit Analytics was used to determine the identity of the auditor, the total assets and industry sector of the company, and whether the company filed for bankruptcy. Audit Analytics, along with LexisNexis, the SEC Accounting and Auditing Enforcement Releases and Spotlight on Stock Options Backdating websites, were used to determine if fraud occurred.

The determination of whether settlements occurred and their amounts (both in aggregate and specific to the auditor) was made primarily with SCAS and secondarily with other sources mentioned above. The determination of whether executives implicated in the stock option backdating were forced to leave their companies was primarily made using *The Wall Street Journal* (2007) and Glass Lewis (2007), and (because executive departures continued for a couple years after 2007) secondarily with Audit Analytics and LexisNexis.

## IV. The Empirical Results

As discussed above, prior research suggests using the characteristics shown in Table 2 as independent variables in multiple logistic regressions to examine the contrast between SOBL and normal (without any stock option backdating allegations) financial reporting litigation. In Panel A, univariate analysis shows that bankruptcy of the company (within a year before or after commencement of litigation) is so extremely negatively associated with the SOBL—it only occurs once—that it is not feasible to use as an independent variable. Its univariate *p*-value is therefore not meaningful. Similarly, the company being a U.S. company (determined by its principal executive offices) is so extremely positively associated with

[16] Savett (2013) provides the six largest aggregate settlement (of the SOBL securities class actions) amounts. The seventh largest was Symbol Technologies, for $126,000,000. The eighth largest was Peregrine Systems, for $117,567,922.

[17] Johnson (2012) addresses this gap with a comprehensive analysis of securities class actions filed in state courts.

[18] "Restatement" in this paper means that a company did not only announce that it would restate. It means the company followed through and restated its previously issued annual financial statements. The restatements sometimes preceded the lawsuit, and sometimes lagged behind the lawsuit.

the SOBL—it occurs all but three times[19]—that it is not feasible to use as an independent variable. The characteristics that had a hypothetical positive or negative significant association with the SOBL (with the exception of fraud and revenue recognition restatements) all have that association in univariate analysis. The description of these variables is in Table 3. Additional variables subsequently analyzed in this paper also are described in Table 3.

Reduced samples are necessary (because some of the litigation is pending) to examine the relationship between the aggregate (i.e., all of the defendants) settlement with the shareholders and the SOBL. There is a negative association, as predicted, but in univariate analysis it is not always significant. This negative association is shown in Panels B and C of Table 2.[20]

In Table 4, three multiple logistic regression models are used to examine the differences between the SOBL and the normal financial reporting litigation. In Model 1, the full sample, the independent variables predicted to have a significant association with the SOBL generally have the hypothesized association. Auditor defendants are negatively associated, the computer industry sectors are positively associated, and restatements for stock option backdating are positively associated with the SOBL. However, there is not a significant association with fraud or with revenue restatements.

In Model 2 the pending litigation is excluded, and in Model 3 the only observations examined are those of completed cases that settled for money paid by the defendants to the shareholders. The hypothesized negative association of the aggregate settlement with the SOBL is found in Model 2 and in Model 3. Auditor defendants are negatively associated with the SOBL in Model 2. Fraud and restatements for stock option backdating are positively associated with the SOBL in both Model 2 and in Model 3.

In Table 5, four multiple logistic regression models are used to examine the differences between the derivative lawsuit-only SOBL and the SOBL observations that include a securities class action. In Model 4, the 108 observations that include a quantified restatement for stock option backdating are examined.[21] Three independent variables predicted to be negatively associated with the derivative lawsuit-only SOBL are found to be significantly negatively associated with the derivative lawsuit-only SOBL: auditor defendants, fraud, and revenue restatements.

In Model 5, the 104 observations for which the Bernile and Jarrell (2009) odds ranks data are available, are examined. The odds ranks are not significantly associated with the derivative lawsuit-only SOBL. Auditor defendants and fraud are negatively associated with the derivative lawsuit-only SOBL.

The full sample of 151 SOBL observations is examined with two models (Model 6 and Model 7) because of the high positive Pearson's correlation (.54) between the forced departure of executives implicated in stock option backdating, and fraud.[22] In Model 6, auditor defendants, fraud, and revenue restatements are negatively associated with the derivative lawsuit-only SOBL.

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[19] Among the SOBL observations there are two Bermudian companies (Marvell Technology Group and Nabors Industries) and one Canadian company (Research in Motion). Among the non-SOBL observations there are companies from Canada (thirty-seven), China (twenty-two), Bermuda (fifteen), UK (thirteen), France (twelve), Israel (eleven), and several other countries.

[20] The six largest aggregate settlements are provided in Savett (2013). The auditor contributions, in the descending order of the six largest aggregate settlements, are UnitedHealth Group, $0, Comverse Technology, $275,000, Broadcom, $13,000,000, Maxim Integrated Products, $0, Juniper Networks, $500,000, and Brocade Communications Systems, $98,500.

[21] Peregrine Systems, noted in Table 1, restated for stock option backdating but the amount of the restatement cannot be determined.

[22] Inclusion of both DEPART and FRAUD in one multiple logistic regression model results in a model with high multicollinearity (condition index greater than thirty) and an inability to discern the separate influence of either of the independent variables on the dependent variable (Belsley et al., 1980).

In Model 7, Big 4 auditors are positively associated with the derivative-only SOBL. There are three negative associations with the derivative-only SOBL: revenue restatements, auditor defendants, and the forced departure of executives implicated in stock option backdating. This finding means that the departure of executives implicated in stock option backdating is positively associated with the SOBL that have related securities class actions.

Given the importance of the investigation of the forced departure of executives implicated in stock option backdating, a modified version of Model 7 also was analyzed. The same eight variables were used, but the departure of executives was the dependent variable and derivative-only (no securities class action) SOBL was an independent variable in the modified version of Model 7. The findings are not shown in a table, but they were robust in the revised model, with derivative-only SOBL negatively and significantly associated with the forced departure of executives at p=.003. Thus, regardless whether DEPART is the dependent variable or DEPART is one of the independent variables, it is significantly more likely that a forced departure of an executive implicated in stock option backdating occurs when the litigation includes a private securities class action, compared to when the litigation does not include a private securities class action.

In Table 6, two multiple linear regression models were used[23] to determine which characteristics are associated with the aggregate dollar amount of the money paid by the defendants to settle with the plaintiffs in fifty-one SOBL securities class actions.[24] Faced with a scarcity of observations, the Lys and Watts (1994) method of parsimonious selection of variables for inclusion in a multiple regression was used. Simple linear regressions with the natural log of the dollar amount of the settlement as the dependent variable and (one at a time) all the potential independent variables for which data were available for all or almost all of the SOBL securities class actions, were performed.

In addition to the variables mentioned earlier in the article, the auditor settlements were examined, because prior research has shown that there is a positive relationship between the amount of the auditor settlement and the amount of the aggregate settlement (Bulan et al., 2014). In simple linear regression, five characteristics were significantly positively associated with the amount of the settlement. These were the natural log of the dollar amount of restatement for stock option backdating ($p$=.007), fraud ($p$=.009), an executive forced to depart his company for stock option backdating ($p$=.010), the natural log of total assets ($p$=.012), and the natural log of the amount of money paid by the auditor to the shareholders to settle ($p$=.029).[25]

In Model 8 of Table 6, there is no independent variable significantly associated with the amount of money paid in the aggregate by all of the defendants to the shareholders to settle the SOBL securities class action. There is one significant variable in Model 9. The forced departure of executives for stock option backdating is positively associated at p=.067 with the amount of money paid in the aggregate by all of the defendants directly to the shareholders to settle the SOBL securities class action.

Given the importance of the investigation of the forced departure of executives implicated in stock option backdating, a modified version of Model 9 also was analyzed. The same five variables were used in the modified version of Model 9, but the departure of executives was the dependent variable and the amount of money paid in the aggregate by all of the defendants was an independent variable. The findings are not

[23] Due to the high positive Pearson's correlation (.61) between the forced departure of executives implicated in stock option backdating, and fraud, and a high level of multicollinearity (condition index greater than thirty), two multiple linear regression models were used (Belsley et al., 1980).

[24] Peregrine Systems' restatement amount for backdating is indeterminable.

[25] In simple linear regression, four characteristics were not significantly associated with the amount of the settlement. These were the presence of a Big 4 auditor ($p$=.386), an auditor defendant ($p$=.651), a revenue restatement ($p$=.721), and the company being in the computer industry ($p$=.926).

shown in a table, but they were robust in the revised model, with the amount of money paid in the aggregate positively and significantly associated with the forced departure of executives at p=.07. Thus, regardless whether DEPART is the dependent variable or DEPART is one of the independent variables, the aggregate settlement amount is significantly positively associated with the forced departure of executives implicated in stock option backdating.

## V. Conclusion, Limitations, and Implications

The SOBL was first compared to typical financial reporting litigation that was filed during the same period. SOBL, compared to typical financial reporting litigation, is negatively associated with auditor defendants, bankruptcy, and the amount of the aggregate settlement with the shareholders. SOBL is positively associated with U.S. companies, companies in the computer industry sectors, and restatements for stock option backdating.

The within-SOBL examination revealed that the derivative lawsuit-only SOBL is negatively associated with auditor defendants, fraud, revenue restatements, and the forced departure of executives implicated in stock option backdating. In other words, it was significantly more likely that executives that engaged in stock option backdating would be forced out if there was a related securities class action. In the final analysis—of the factors associated with the amount of the SOBL securities class action settlement with the shareholders—the departure of executives implicated in stock option backdating had a positive association with the settlement amount. It was the only significant factor associated with the aggregate amount of the SOBL securities class action settlement with the shareholders.

These results suggest that securities class actions were more effective than derivative lawsuits in forcing the departure of executives implicated in stock option backdating, and that the effectiveness of the securities class actions was positively associated with the success of the plaintiffs in the prosecution of the private securities class action. Choi and Pritchard (2014) found evidence suggesting that securities class actions may be a more effective accountability mechanism than SEC enforcement actions with regard to the deterrence of future occurrence of fraud. These results support their findings by showing that securities class actions were a more effective ex post disciplining mechanism than derivative lawsuits with regard to making executives accountable for stock option backdating fraud. This is particularly true where relatively large amounts are paid to the shareholders in the securities class action settlements.

A limitation of this study is that it focuses on stock option backdating fraud. This focus was a worthwhile limitation, given that such a focus provided a unique opportunity to compare securities class actions with derivative lawsuits. Nonetheless, the findings of this study may not generalize to all executive fraud scenarios. However, the findings of this study may to some degree generalize to all executive fraud settings. If so, this generalization would imply that legislative or judicial attempts to weaken the viability of private securities class actions may, if successful, weaken an indispensable accountability mechanism that helps to deter the future occurrence of executive fraud.

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**Table 1: Description of fourteen stock option backdating private securities class actions added to Savett's (2013) thirty-nine class actions at** https://app.box.com/shared/jovgck1rvn.

| Company | Stock Option Backdating Restatement | Filing Date of Class Action | Filing Date SEC or DOJ Action | Alternative reasons this is a backdating securities class action |
|---|---|---|---|---|
| Blue Coat Systems | Yes | 4/11/05 | 11/12/08 | |
| Black Box Corp. | Yes | 3/24/03 | 12/4/09 | |
| Computer Sciences Corp. | Yes | 6/1/06 | None | On 5/29/09 in Nevada state court a class action was filed re same allegations as derivative backdating lawsuits filed in 2006 |
| Dot Hill Systems Corp. | No | 1/31/06 | None | In early 2006, class actions and derivative suits filed re same facts. On 1/12/07 a similar derivative suit alleged backdating. |
| Embarcadero Technologies | Yes | 11/5/04 | 9/9/08 | |
| Engineered Support Systems | No | 11/5/08 | 7/19/07 | Class action in Circuit Court for City of St. Louis, Missouri, alleges false financial reporting due to stock option backdating. |
| Microtune, Inc. | Yes | 2/24/04 | 6/30/08 | |
| Molex Inc. | Yes | 3/8/05 | None | In early 2005, class actions and derivative suits filed re same facts. November 2006 amended derivative complaint added stock option backdating allegations. |
| NPS Pharmaceuticals, Inc. | No | 7/12/06 | None | Amended complaint filed 1/16/07 in class action in the District of Utah contains allegations of stock option backdating. |
| Pediatrix Medical Group | Yes | 6/27/03 | 3/5/09 | |
| Peregrine Systems | Yes | 5/6/02 | 6/30/03 | |
| Shaw Group, Inc. | Yes | 10/10/06 | None | Amended complaint filed 12/3/07 in securities class action in Southern District of New York alleges backdating. |
| Symbol Technologies Inc. | Yes | 3/5/02 | 6/3/04 | |
| Take Two Interactive Software | Yes | 2/1/06 | 2/14/07 | First class action complaint, as well as amendments, allege stock option backdating. |

**Table 2: Summary statistics for possible and utilized (all letters capitalized) independent variables for multiple logistic regression models.**

| Panel A. Full sample n=1286. | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | |
| Dependent variable 1=Stock Option Backdating Litigation (n=151), 0=Normal financial reporting litigation (n=1135) | | | | | | |
| | | | | | | |
| For variable definitions see Table 3. | | | | | | |
| | + or - with SOBL | Normal litigation Count | Mean or % | SOBL Count | Mean or % | *p*-value |
| ASSETS in $million; ln used for p-value | + | NA | 39731 | NA | 7057 | 0.547 |
| | | | | | | |
| AUDDEF | - | 303 | 27% | 19 | 13% | .000 |
| Bankruptcy | - | 126 | 11% | 1 | 1% | NM |
| BIG4 | + | 867 | 76% | 139 | 92% | .000 |
| COMPUTER | + | 158 | 14% | 63 | 42% | .000 |
| FRAUD | + | 240 | 21% | 36 | 24% | 0.449 |
| RESTATEREV | + | 172 | 15% | 23 | 15% | 0.98 |
| RESTATESOBD | + | 19 | 2% | 110 | 73% | .000 |
| U.S. company | + | 965 | 85% | 148 | 98% | NM |
| Panel B. Full sample less pending cases n=1198. | | | | | | |
| Dependent variable 1=Stock Option Backdating Litigation (n=150), 0=Normal financial reporting litigation (n=1048) | | | | | | |
| AGGREGATE in $million; ln used for p-value | - | NA | 39 | NA | 18 | .000 |
| Panel C. Full sample but limited to cases that settled for money directly paid to shareholders n=686 | | | | | | |
| Dependent variable 1=Stock Option Backdating Litigation (n=38), 0=Normal financial reporting litigation (n=648) | | | | | | |
| AGGREGATE per ASSETS | - | NA | 0.106 | NA | 0.031 | 0.305 |

**Table 3: Definitions of the variables used in multiple logistic regression or multiple linear regression.**

| **Dependent variables.** |
|---|
| SOBL: 1=Stock option backdating litigation, 0=normal financial reporting litigation |
| DERIVATIVE: 1=SOBL that includes a derivative lawsuit but not a securities class action, 0=SOBL that includes a class action |

| **Independent variables.** |
|---|
| ASSETS: Total assets in dollars; ln used for regression analysis. |
| AUDDEF: Auditor named a defendant in the litigation. |
| AUDSETTLE: Amount of money paid by the auditor to the shareholders to settle; ln used for regression analysis. |
| BIG4: Auditor is Big 4 |
| COMPUTER: 1=SIC 367 (Electronic components & accessories) or 737 (Computer programming & data processing), 0=otherwise |
| DEPART: 1= executive forced to depart company for stock option backdating, 0=otherwise |
| FRAUD: 1=company or management SEC or DOJ financial reporting prosecution, 0=otherwise |
| ODDSRANK: Bernile & Jarrell (2009) ranking of odds that selection of stock option grant dates was random. Company 129 is the least likely to have made random selections and thus the most likely to have backdated stock option grant documents. |
| RESTATEREV: 1=restatement of annual financials for revenue recognition, 0=otherwise |
| RESTATESOBD: 1=restatement of annual financials for stock option backdating, 0=otherwise |
| RESTATESOBD$. Dollar amount of restatement for stock option backdating; ln used for regression analysis. |

| **Sometimes used as dependent variable, sometimes as independent variable.** |
|---|
| AGGREGATE: Amount of money paid by all the defendants to the shareholders to settle; ln used for regression analysis. |

**Table 4: Multiple logistic regression analysis comparing stock option backdating litigation to normal financial reporting litigation.**

Variables are defined in Table 3. *P*-values are two-sided.

Model 1. Full sample (n=1286). Dependent variable 1=SOBL (n=151), 0=normal financial reporting litigation (n=1135).

Model 2. Completed cases (n=1198). Dependent variable 1=SOBL (n=150), 0=normal financial reporting litigation (n=1048).

Model 3. Cases settled for money (n=686). Dependent variable 1=SOBL (n=38), 0=normal financial reporting litigation (n=648).

| | Model 1 Coefficient | *p*-value | Model 2 Coefficient | *p*-value | Model 3 Coefficient | *p*-value |
|---|---|---|---|---|---|---|
| Constant | -4.217 | 0.000 | -3.59 | 0.000 | -1.429 | 0.629 |
| ASSETS | 0.032 | 0.589 | 0.054 | 0.402 | -0.302 | 0.181 |
| AUDDEF | -1.332 | 0.002 | -0.749 | 0.092 | -0.358 | .637 |
| BIG4 | 0.639 | 0.161 | 0.251 | 0.577 | -0.091 | .918 |
| COMPUTER | 0.56 | 0.082 | 0.511 | 0.130 | 0.499 | .498 |
| FRAUD | 0.576 | 0.137 | 1.311 | 0.001 | 2.591 | 0.001 |
| RESTATEREV | -0.402 | 0.332 | -0.204 | 0.629 | -0.869 | 0.271 |
| RESTATESOBD | 4.967 | 0.000 | 5.065 | 0.000 | 6.804 | 0.000 |
| AGGREGATE | | | -0.124 | 0.000 | | |
| AGGREGATE per ASSETS | | | | | -0.014 | 0.095 |
| Pseudo-$R^2$ | 0.588 | | 0.600 | | 0.699 | |

**Table 5: Multiple logistic regression analysis comparing the stock option backdating derivative lawsuit observations to the stock option backdating observations that include a private securities class action.**

Variables are defined in Table 3. *P*-values are two-sided.

Model 4. Stock option backdating litigation with a quantified restatement for stock option backdating (n=108).

1=DERIVATIVE (n=65), 0= stock option backdating litigation that includes a private securities class action (n=43).

Model 5. Stock option backdating litigation with ODDSRANK data (n=104). 1=DERIVATIVE (n=65), 0=stock option backdating litigation that includes a private securities class action (n=39).

Model 6. Stock option backdating litigation (n=151). 1=DERIVATIVE (n=98), 0=stock option backdating litigation that includes a private securities class action (n=53).

Model 7. Stock option backdating litigation (n=151). 1=DERIVATIVE (n=98), 0=stock option backdating litigation that includes a securities class action (n=53).

| | Model 4 Coefficient | *p*-value | Model 5 Coefficient | *p*-value | Model 6 Coefficient | *p*-value | Model 7 Coefficient | *p*-value |
|---|---|---|---|---|---|---|---|---|
| Constant | 2.460 | 0.382 | 3.184 | 0.234 | 0.934 | 0.634 | 1.549 | 0.398 |
| ASSETS | -0.159 | 0.456 | -0.114 | 0.508 | -0.009 | .950 | -0.067 | 0.607 |
| AUDDEF | -2.103 | 0.007 | -2.221 | 0.019 | -2.316 | .003 | -2.070 | .003 |
| BIG4 | 1.53 | 0.105 | 0.053 | 0.966 | 1.164 | .121 | 1.257 | .084 |
| COMPUTER | -0.017 | 0.973 | 0.519 | 0.338 | 0.394 | .388 | 0.486 | .256 |
| DEPART | | | | | | | -1.33 | 0.003 |
| FRAUD | -2.197 | 0.000 | -2.290 | .000 | -2.285 | .000 | | |

**Table 5 (continued)**

Model 4. Stock option backdating litigation with a quantified restatement for stock option backdating (n=108).

1=DERIVATIVE (n=65), 0= stock option backdating litigation that includes a private securities class action (n=43).

Model 5. Stock option backdating litigation with ODDSRANK data (n=104). 1=DERIVATIVE (n=65), 0=stock option backdating litigation that includes a private securities class action (n=39).

Model 6. Stock option backdating litigation (n=151). 1=DERIVATIVE (n=98), 0=stock option backdating litigation that includes a private securities class action (n=53).

Model 7. Stock option backdating litigation (n=151). 1=DERIVATIVE (n=98), 0=stock option backdating litigation that includes a securities class action (n=53).

| | Model 4 Coefficient | *p*-value | Model 5 Coefficient | *p*-value | Model 6 Coefficient | *p*-value | Model 7 Coefficient | *p*-value |
|---|---|---|---|---|---|---|---|---|
| ODDSRANK | | | 0.001 | 0.913 | | | | |
| RESTATEREV | -1.140 | 0.074 | -0.154 | 0.848 | -0.988 | .090 | -1.345 | 0.018 |
| RESTATESOBD | | | -0.647 | 0.351 | -.533 | 0.321 | -0.553 | 0.291 |
| RESTATESOBD$ | -0.000 | 0.545 | | | | | | |
| Pseudo-$R^2$ | 0.355 | | 0.327 | | .340 | | 0.258 | |

**Table 6: Multiple linear regression analysis of the amount of money paid by all the defendants in the aggregate directly to the shareholders to settle the private securities class actions.**

Variables are defined in Table 3. *P*-values are two-sided.

Model 8. Stock option backdating litigation with completed securities class actions (n=51)

Model 9. Stock option backdating litigation with completed securities class actions (n=51)

*Peregrine Systems* lacks quantification of the amount of the restatement for stock option backdating.

| | Model 8 | | Model 9 | |
|---|---|---|---|---|
| | Coefficient | *p*-value | Coefficient | *p*-value |
| Constant | -8.103 | 0.407 | -8.844 | 0.360 |
| ASSETS | 1.072 | 0.160 | 1.123 | 0.135 |
| AUDSETTLE | 0.236 | 0.265 | 0.269 | 0.194 |
| DEPART | | | 3.731 | 0.067 |
| FRAUD | 3.376 | 0.110 | | |
| RESTATESOBD$ | 0.359 | 0.157 | 0.337 | 0.181 |
| $R^2$ | 0.270 | | 0.282 | |