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Coming Forward: The Effects of Social and Regulatory Forces on the Voluntary Restatement of Earnings Subsequent to Wrongdoing

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We investigate the effects of social and regulatory forces on a firm's decision to disclose past wrongdoing by voluntarily restating its earnings. With an eight-year sample of more than 2,500 public firms, including 170 voluntary restaters, we find that firms are more likely to voluntarily restate their earnings in response to informal social pressures from other firms in their industry and less likely to do so in response to formal regulatory sanctions. We also show that the impact of these forces varies with firm status. We contribute to corporate governance and public policy research that examines the effectiveness of "hard" versus "soft" deterrence measures on firm compliance.

Key words: voluntary disclosure; corporate corruption; earnings restatements; self-regulation; informal versus formal sanctions; corporate compliance; corporate deterrence; public policy; corporate governance
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The corporate governance problems of earnings manipulation and accounting fraud appear common among U.S. firms. Indeed, the rise in public firms' restating their reported financial earnings has increased over the last several years (Huron Consulting Group 2002), as has public awareness of corporate restatements' negative impact (Johnson 2004). For example, the U.S. General Accounting Office (GAO) reported that restatements announced between 1997 and 2002 resulted in more than $200 billion in market losses and that nearly 10% of public corporations restated their earnings during that five and a half year period (GAO 2002). More specifically, financial restatements trebled from the 1994–1997 to the 1998–2001 period (Richardson et al. 2002, Wu 2002). AIG, the world's fourth largest insurance company, lost $45 billion in market value after investigators discovered that it was enmeshed in accounting fraud. When AIG restated its corporate earnings going back to 2000, it reduced profits by almost $4 billion, cutting its net worth by $2.3 billion (Teather 2005). Further, to be caught and prosecuted by a law-enforcement body like the Securities and Exchange Commission (SEC) typically results not only in financial losses but also in increased damage to a firm's image, reputation, and legitimacy (Akhigbe et al. 2005, Nagel and Swenson 1993, Palmrose et al. 2004, Reason 2005, Simpson 2002). Moreover, many of these prosecutions are followed by class-action lawsuits specifically targeted at corporations and their leaders (Reason 2005, Srinivasan 2005). The Corporate Fraud Taskforce, created in the wake of Enron, WorldCom, and other scandals, reports that since July 2002, there have been more than 900 charges of corporate crime and more than 500 convictions (Johnson 2004).

The governance problems of earnings manipulation and accounting fraud are addressed by both formal and informal external forces. For example, accounting fraud may be mitigated through formal legal sanctions, including indictments of top management, civil or criminal charges, corporate bankruptcy, and even dissolution of the firm (Braithwaite 1982, Simpson 2002). Certainly, the Sarbanes-Oxley Act of 2002, which requires that CEOs and CFOs personally sign and approve all financial statements, was created to make top managers responsible to shareholders for the accuracy of their financial reporting. However, regulatory sanctions can be expensive to society and are often ineffective in controlling corporate corruption (Braithwaite 1982, Simpson

2002). For example, *The Economist* estimated the net private cost of implementing Sarbanes-Oxley to be $1.4 trillion (2005), and industry sources have estimated that firms have dedicated more than 20,000 work hours on average to satisfy its compliance requirements (Keating 2006).

An alternative to imposing formal sanctions to correct corporate wrongdoing involves informal social forces, such as standard operating norms and practices within an industry (Braithwaite and Fisse 1983, Innes 1999, Vandenbergh 2003). Industry members may have implicit expectations of proper behavior and withhold legitimacy from violators (Edelman 1992; Ghoshal and Moran 1996; Ouchi 1979, 1980). Such informal pressures may encourage violating firms to conform to what the industry considers legitimate business practices (DiMaggio and Powell 1983). This type of industry self-regulation indeed may be more effective than traditional, formal deterrence methods (Ayres and Braithwaite 1992, Pearce and Tombs 1992).

In this study, we examine the impact of formal and informal external forces on a firm's decision to voluntarily disclose wrongdoing by restating its corporate earnings. Whereas formal forces are imposed through legal or bureaucratic means and induce *involuntary* compliance, informal forces work through social norms and practices, encouraging *voluntary* compliance. We hypothesize that firms will be more likely to voluntarily restate their earnings when they observe that industry leaders, peers, and network members have previously restated theirs. In contrast, we posit that the threat of formal sanctions by regulators will have a negative effect on the voluntary disclosure of wrongdoing. Additionally, we argue that a firm's status in the industry moderates the impact of these forces in different ways.

We contribute to the literature on corporate governance and compliance by examining how formal and informal external forces impact the likelihood that a firm will voluntarily disclose past wrongdoing and restate its earnings. By identifying the extent to which voluntary disclosure of wrongdoing is induced by the past behaviors of other firms in the industry versus the threat of formal, state-led sanctions, we begin to address important public policy governance questions about how informal social pressures and formal legal forces encourage corporate compliance.

We specifically contribute by addressing a long-standing question among organizational and legal scholars: How do "hard" versus "soft" deterrence measures influence corporate compliance (cf. Ayres and Braithwaite 1992, King and Lenox 2000, May 2004, Short and Toffel 2008, Simpson 2002, Vandenbergh 2003)? To date, the governance literature in management has largely overlooked this question and has not examined the impact of external forces (whether formal or informal) on correcting corporate wrongdoing. Governance research has focused instead on firm- and industry-level antecedents that predict corporate malfeasance (e.g., Baucus 1994, Coleman 1987, Finney and Lesieur 1982). For example, researchers have identified a number of individual- and firm-level internal factors that may lead to accounting fraud (Arthaud-Day et al. 2006, O'Connor et al. 2006, Harris and Bromiley 2007, Kinney et al. 2004, Zhang et al. 2008). Although important, this work has emphasized compliance solutions related to internal corporate governance rather than to broader public and regulatory policy concerns. The governance literature in sociology and law has been primarily conceptual to date (cf. Short and Toffel 2008, Vandenbergh 2003). Empirical tests have been predominantly in the area of environmental compliance (Vandenbergh 2003).

Although the governance literature in accounting has investigated restatements, it has not focused on voluntary restatements as a core construct of interest, nor have researchers theorized and tested how external social and regulatory forces affect the decision to come forward and restate earnings. Thus, by bringing the deterrence and compliance debate into the management governance literature and by focusing on a new form of voluntary disclosure of wrongdoing (corporate misconduct leading to earnings restatements), we integrate governance and compliance research in several distinct fields—management, sociology, and law.

Voluntary Disclosure of Wrongdoing

Regulatory deviance is widespread among U.S. corporations (Pearce and Tombs 1992, Reed and Yeager 1996). A recent survey of corporate executives found that a majority (83%) believes it is acceptable to bend rules that are out of date or ambiguous, whereas 74% believe it is acceptable to do so to achieve performance goals (Veiga et al. 2004). More specifically, the manipulation of corporate earnings through income smoothing, earnings management, or explicitly fraudulent behavior is common among public corporations (e.g., Bedard and Johnstone 2004, Gayer and Paterson 2001, Loomis 1999, Norris and Eichenwald 2002). Although few firms are indicted or convicted of fraudulent activity, many routinely engage in earnings management, "the use of flexible accounting principles that allow managers to influence reported earnings, thereby causing reported income to be larger or smaller than it would otherwise be" (Davidson et al. 2004, p. 267, Harris and Bromiley 2007).

Because such activities are pervasive, we assume that all public firms are at risk of regulatory deviance through manipulation of earnings and thus also at risk of restating them. Our sample contains earnings restatements that resulted from "aggressive accounting practices," including fraud (GOA 2002, p. 4). It includes firms that volunteered to restate earnings and firms that did not

restate their earnings from 1997 to 2002. Restatements prompted by benign reasons, including oversight, stock splits, changes in accounting rules, discontinued operations, and human error are not included (see Akhigbe et al. 2005, Arthaud-Day et al. 2006, Desai et al. 2006, Harris and Bromiley 2007, and Srinivasan 2005 for similar samples and measures). Although some previous research has discussed voluntary restatements (e.g., Akhigbe et al. 2005, Palmrose et al. 2004, Wu 2002), this study is the first to make voluntary restatements the main construct of interest.

Our use of the term "voluntary disclosure of wrongdoing" is drawn primarily from sociological and legal research (cf. Benson 1985, Braithwaite 1982, Nagel and Swenson 1993, Simpson 2002). We relate voluntary disclosure of wrongdoing to the voluntary restatements in our sample, which are "indicative of intentional, manipulative, or fraudulent behavior" (Arthaud-Day et al. 2006, p. 4). However, we recognize that voluntary disclosure of wrongdoing has similarities to the term "voluntary disclosure" developed in the accounting literature. Specifically, voluntary disclosure is used in the accounting literature to denote information that firms provide in addition to mandatory disclosure, such as the quarterly and annual reporting of earnings required by the SEC. From an accounting standpoint, voluntary disclosure largely reduces information asymmetry between the firm and its stakeholders to build trust, enhance performance, and help overcome potential agency problems (see Core 2001, Dye 2001, Healy and Palepu 2001, and Verrechia 2001 for reviews of the theoretical and empirical accounting literature on voluntary disclosure). In the accounting literature, firms ordinarily disclose positive information about themselves (Skinner 1994, Suijs 2005), thereby differentiating voluntary disclosure in this research from our use of voluntary disclosure of wrongdoing.

Some accounting research has also focused on the disclosure of negative information to reduce the likelihood of adverse market reactions, including a decline in stock price or shareholder lawsuits (Field et al. 2005, Kasznik and Lev 1995, Mercer 2005, Skinner 1994, Suijs 2005). Thus, when accounting research focuses on the disclosure of negative information, it may overlap with the compliance and sociology literature definition of voluntary disclosure of wrongdoing, although accounting research has not specifically addressed voluntary disclosure of "intentional, manipulative, or fraudulent behavior" (Arthaud-Day et al. 2006, p. 4) as compliance research does and as we do here. Still, none of these research streams to date has examined how informal and formal external forces influence the likelihood that firms will come forward and disclose wrongdoing in the form of a voluntary restatement of earnings. In addition, our tests of the effects of formal and informal external forces on a firm's decision to voluntarily disclose wrongdoing to the public expand on a long-standing question in these fields: What are the effects of formal regulatory and informal social forces on firms' coming forward and disclosing past wrongdoing?

Effects of Coming Forward and Disclosing Wrongdoing

Voluntary disclosure of wrongdoing typically creates an initial negative response from stakeholders. Specifically, a firm's governance decision to restate its earnings has significant negative financial and managerial consequences. For example, the U.S. GAO reported that restatements announced between 1997 and 2002 resulted in more than $200 billion in market losses, including an average 18% decline in market value for the restating firm's stock in the 60 days after the announcement (2002). In a study of 264 aggressive restatements culled from the GAO data set, 135, or nearly 52%, generated lawsuits. These restatements also led to 147 CEO dismissals, 191 CFO dismissals, and 117 auditor changes (Srinivasan 2005).

Because restatements typically result in substantial losses of a firm's market value, the decision to voluntarily restate earnings can be highly problematic. Managers can choose to come forward, acknowledge their past wrongdoing, and hope that the punishment will not be too severe. Alternatively, they can remain silent and hope that their wrongful acts will go unnoticed (Edmondson 1996, 1999; Kasznik and Lev 1995; Zhao and Olivera 2006). Prior organizational research has shown that voluntary disclosure of wrongdoing may be a more effective strategy than concealment (Benoit 1995; Benson 1985; Elsbach 1994, 2003; Innes 1999; Lee et al. 2004; Nagel and Swenson 1993; Salancik and Meindl 1984; Siegel and Brockner 2005; Simpson 2002; Skinner 1994). Voluntarily disclosing wrongdoing can mitigate punishment (Field et al. 2005, Nagel and Swenson 1993, Reason 2005), limit sentence severity (Simpson 2002), and potentially lessen damage to the firm's legitimacy (Mercer 2005, Palmrose et al. 2004).

Moreover, research demonstrates that stocks of companies that accept responsibility, disclose wrongdoing, and attempt to remedy the results of negative actions outperform stocks of firms that do not come forward and take responsibility for their misconduct (Lee et al. 2004, Marcus and Goodman 1991). For example, Akhigbe et al. (2005) showed that the stocks of firms that were forced to restate by the SEC lost 9.3%, or more than twice the amount of voluntary restaters (−4.2%), in the two-day window surrounding the announcement date.

Additional organizational research supports the idea that stakeholders form more favorable opinions of companies that voluntarily disclose their past wrongdoing compared with companies that conceal it: Exxon's failure to accept responsibility after the Valdez oil spill led

to a strong public backlash (Benoit 1995). Firm executives attempted to shift blame to the ship's captain and even to the state of Alaska for delaying the environmental cleanup (Benoit 1995). In contrast, Texaco, in the wake of its racial discrimination scandal, quickly disclosed its wrongdoing and put special procedures in place to correct its executives' misconduct. Although short-term reactions among stakeholders were decidedly negative, Texaco's prompt disclosure and acceptance of responsibility led to its being viewed as a model of employee relations in less than five years (Singer 2004). Thus, while voluntarily disclosing wrongdoing may first look unappealing to a violating firm, it actually may represent a more attractive course of action for the organization that wants to limit its losses and minimize damage to its legitimacy (Elsbach 1994, 2003; Suchman 1995; Zucker 1987).

Certain regulators also encourage the voluntary disclosure of wrongdoing. For example, the SEC has recently indicated that it will "reward cooperation" and self-reporting while simultaneously increasing punishment for those firms that do not cooperate with investigations (Reason 2005, p. 2). Likewise, the U.S. Department of Agriculture (USDA) and Department of Defense offer special incentives to come forward (Short and Toffel 2008). Finally, the National Collegiate Athletic Association (NCAA) also stresses the importance of voluntarily disclosing wrongdoing:

> Regulation 32.2.1.2 Self-Disclosure by an Institution. Self-disclosure shall be considered in establishing penalties, and, if an institution uncovers a violation prior to its being reported to the NCAA and/or its conference, such disclosure shall be considered as a mitigating factor in determining the penalty. (NCAA 2005)

The decision to restate corporate earnings can be affected by multiple factors, including personal characteristics of decision makers (O'Connor et al. 2006, Zhang et al. 2008) and organizational incentives and oversight (Beneish 1999, Benoit 1995, Healy 1985, Richardson et al. 2002, Simpson 2002). We focus on examining how formal and informal forces influence a firm's decision to disclose wrongdoing and to voluntarily restate its earnings while controlling for the potential impact of executive and firm-level behaviors.

Effects of Informal and Formal Forces on the Voluntary Disclosure of Wrongdoing

If voluntarily disclosure of wrongdoing is a social good and provides benefits to both society and the firm, how, then, do "hard" versus "soft" external forces influence voluntary disclosure of wrongdoing in general, and in particular, how do they affect the likelihood of the voluntary restatement of earnings? For decades, legal and sociological scholars have debated the impact of informal social forces versus formal legal sanctions on influencing the self-policing of firm behavior (cf. Ayres and Braithwaite 1992, Braithwaite 1982, Simpson 2002, Vandenbergh 2003). Empirical research comparing the impact of these two forces has been confined primarily to studies of firms engaging in environmental misconduct (cf. Short and Toffel 2008, Vandenbergh 2003). We develop and test a theory to illuminate the potentially contrasting effects of informal social pressures and formal legal sanctions on the likelihood of firms' voluntarily restating their earnings.

Effects of Informal Social Forces on the Voluntary Disclosure of Wrongdoing

Firm decision making and governance may be constrained by informal forces such as institutional social rules and industry norms (Ingram and Simons 1995, Oliver 1997). Informal pressures to disclose prior wrongdoing may arise from the actions of industry leaders and peers and through network connections. Amid uncertainty about the ramifications of disclosing its former transgressions, the firm may pay close attention to how other industry members and network members have dealt with similar problems.

Legal and sociological research on industry self-regulation supports the idea that informal social forces can provide adequate self-policing to induce voluntary compliance (Braithwaite 1982, Short and Toffel 2008, Simpson 2002, Vandenberg 2003). Industry advocates and scholars argue that formal government regulation is often intrusive and ineffective (Hasnas 2007, Keating 2006, King and Lenox 2000) and that the justice system's ability to control corporate behavior is hampered by time and resource constraints (Braithwaite 1982, Simpson 2002). In contrast, informal industry self-regulation is a viable alternative to formal legal sanctions because firms know themselves better than the regulators do, have established informal norms of behavior that can generate compliance similar to formal laws (Rees 1994), and can exert strong influence over firms that have acted inappropriately (Braithwaite 1989, Simpson 2002). Informal social forces, then, influence those firms concerned with maintaining their legitimacy among other industry members and external stakeholders (May 2004, Suchman 1995). We examine the effects of three informal social forces on the likelihood of voluntarily disclosure of wrongdoing: How do peers, industry leaders, and network connections affect the likelihood of a firm voluntarily restating its earnings?

Leader and Peer Forces. Imitating other firms' behavior generally occurs in response to uncertainty or when a clear course of action is difficult to determine (Mizruchi and Fein 1999). The decision to voluntarily disclose wrongdoing is clearly fraught with uncertainty, given the potentially negative impact on firm performance and the possible damage to legitimacy associated both with

disclosure of wrongdoing and with concealing negative information and subsequently being caught (Akhigbe et al. 2005, Palmrose et al. 2004, Wu 2002). Facing such uncertainty, firms may check competitors' actions under similar circumstances (Peteraf and Shanley 1997, Terlaak and King 2006). Several studies have shown that under uncertainty firms will imitate successful and/or large firms (Deephouse 1996, Fligstein 1985, Greve 2000). We call these industry performance leaders and industry size leaders, respectively. As such behavior proliferates, it becomes more socially acceptable to do the same (Carroll and Swaminathan 2000). For example, in a longitudinal study of 165 savings and loans (S&Ls), Haveman (1993) found that specific S&Ls tended to mimic large and highly profitable S&Ls, i.e., industry leaders.

Similarly, firms will also tend to imitate the actions of firms that are high in frequency—a bandwagon effect that occurs because of the sheer number of other adopters (cf. Abrahamson and Rosenkopf 1993). For example, Haunschild and Miner (1997) observed that firms were more likely to hire a particular investment banker when many other similar firms had already done so. In addition, the likelihood of employing a certain investment banker increased when previous firms that hired it were also large and successful. Along the same lines, Strang and Macy (2001) observed imitative behavior by U.S. firms in their adoption of Japanese-constructed quality circles in the 1980s—as the number of firms using quality circles increased, more firms were also likely to adopt them. By analogy, one can conjecture that when industry performance or size leaders come forward, or when many firms in an industry voluntarily acknowledge wrongdoing, these forces may induce other firms to follow suit.

HYPOTHESIS 1A (H1A). *Industry performance leaders that voluntarily restated will increase the likelihood that a firm in the industry will voluntarily restate its earnings.*

HYPOTHESIS 1B (H1B). *Industry size leaders that voluntarily restated will increase the likelihood that a firm in the industry will voluntarily restate its earnings.*

HYPOTHESIS 1C (H1C). *The greater the number of previous voluntary restaters in the industry, the greater the likelihood that a firm in the industry will voluntarily restate its earnings.*

Network Connections. Firms' decision making and governance can also be influenced by their connections or ties to other network members (Granovetter 1985, Gulati 1998, Uzzi 1996). These ties serve as conduits for social information (Burt 1992, Gulati 1998, Powell et al. 1996) and can facilitate the diffusion of acceptable behaviors (Davis 1991). Network connections help distribute norms, values, and procedures as signals of what is widely considered the right thing to do (DiMaggio and Powell 1983, Ghoshal and Moran 1996). Abrahamson and Rosenkopf (1997) discussed this "trickle-down" effect, stating that network members tend to adopt uniform norms and standards.

Firms can experience these informal pressures through a variety of network connections, including personnel exchange, board interlocks, membership in trade associations, and shared auditors. Hence, it is plausible that indirect connections among firms in an industry via an intermediary will also spread industry self-regulatory mechanisms (Uzzi 1996). Intermediaries function as third-party referral networks and "transfer expectations" between firms (Uzzi 1996, p. 679). For example, research has shown that the professional association ties in the legal field helped diffuse informal practices regarding firm arbitration procedures into de facto "laws of the land," even though no formal laws regarding these procedures had ever been passed (Edelman 1992, Edelman et al. 1999). Similarly, the interrelation of company boards (i.e., interlocks) has an impact on whether a firm leaves the NASDAQ to join the NYSE, irrespective of performance implications (Rao et al. 2000). Finally, Uzzi (1996) showed that indirect links between firms through shared contractors increased the likelihood of their survival even if they had no direct interaction with each other.

Apparently, firms' decisions to correct wrongdoing are not based solely on economic expectations, but are also influenced by social context (Granovetter 1985). Organizations are likely to learn of the network's views of acceptable and unacceptable behaviors not just through direct observation of leaders and peers, but also through the indirect transfer of information from intermediaries (Burt 1992, Uzzi 1996). We hypothesize that accounting firms can fill an important structural hole as an intermediary in an industry by helping firms diffuse new industry practices, especially accounting practices such as restatements. Specifically, when firms are connected in an industry network through an accountant, and if network members are voluntarily restating earnings, they are indirectly communicating to other firms in the network that this type of behavior is considered appropriate under the circumstances.

HYPOTHESIS 1D (H1D). *Network members that voluntarily restated will increase the likelihood that a firm in the network will voluntarily restate its earnings.*

Effects of Formal Regulatory Forces on the Voluntary Disclosure of Wrongdoing

In addition to informal social forces, firms may face formal, regulatory pressures to conform to industry and societal standards. Deterrence theory states that firms comply with the law out of fear of punishment (Simpson 2002, Vandenbergh 2003). In addition, organizational

scholars note that the state's ability to impose its will on organizations through the use of sanctions is a major regulatory mechanism of control and one that can induce conformity (cf. Scott 2001). Similarly, DiMaggio and Powell (1983) and Greening and Gray (1994) note that organizations may view regulatory pressures as a means to force them to behave in a certain way.

Various scholars, however, have expressed doubt as to whether formal sanctions truly have a deterring effect (*Harvard Law Review* 2003; see also Braithwaite 1982, Hasnas 2007, Simpson 2002, Vandenbergh 2003). For example, the regulatory system's inability to prevent corporate wrongdoing is well documented (Braithwaite 1982, Hasnas 2007, Short and Toffel 2008, Vandenbergh 2003). Regulators often do not have the time or the resources to investigate and punish corporate offenders. In addition, regulatory sanctions often overpunish firms, resulting in a backlash from other industry members, who begin to view the law as heavy handed and unfair (cf. Simpson 2002).

When the SEC forces an industry peer or leader to restate its earnings, other members of the industry may recoil from the negative effects of the enforcement and avoid voluntarily restating their earnings. Thus, the coercion may actually have the opposite of its intended effect. Instead of influencing firms to disclose wrongdoing, it may in fact drive them to conceal it. Reports in the business press support this notion. Given the recent events surrounding firm and executive prosecutions, several firms believe that the SEC is operating "outside of judicial review and scrutiny" (Reason 2005, p. 3) and that the "calculus of cooperation [between firms and the SEC] may be heading in the opposite direction" (Reason 2005, p. 3). Corporations have also complained that Sarbanes-Oxley legislation has "raised the cost of being [a] public [firm]" (Ip 2006, p. C1) and that this overregulation has led to exorbitant costs of compliance, delistings, and a loss of U.S. competitiveness vis-à-vis other, less-regulated financial markets (Johnson 2006a, b, c; Keating 2006; Ip 2006; Schuman 2006).

In view of these potentially counterproductive effects of formal regulatory forces, we expect that their effects will *decrease* the likelihood of a firm voluntarily restating its earnings. In other words, the impact of legal sanctions on other members of the industry will lower the chances that a firm will *voluntarily* disclose its prior wrongdoing. Indeed, regulatory coercion "can invalidate consent" (Donaldson and Dunfee 1994, p. 263).

HYPOTHESIS 2 (H2). *The greater the number of previous forced restaters in the industry, the lower the likelihood that a firm in the industry will voluntarily restate its earnings.*

Moderating Role of Firm Status

Status represents a firm's perceived quality vis-à-vis its peers (Podolny 1993) or the amount of "honor or esteem" accorded to a firm (Phillips and Zuckerman 2001, p. 386). Firm status can be related to firm performance, size, rankings along particular attributes, reputation, and the quality of relationships (Fombrun 1996, Podolny 1994, Washington and Zajac 2005).

As a firm's status in the industry rises, it may become more impervious to the impact of informal social forces. Higher-status firms are not particularly worried that they may suffer peer rejection because of their nonconforming and even illegitimate behavior (Deephouse 1999, Phillips and Zuckerman 2001). Such firms can accumulate "idiosyncrasy credits" that allow them to absorb legitimacy challenges without penalty (Deephouse and Carter 2005, Hollander 1958). Higher-status firms are therefore "emboldened to deviate" from industry norms (Phillips and Zuckerman 2001, p. 380). In contrast, lower-status firms are more concerned about the legitimacy of their actions and seek to "demonstrate their conformity to accepted practice" in the industry (Phillips and Zuckerman 2001, p. 382).

Although high-status firms may be less concerned about their conformity to informal norms of industry behavior, they are more concerned about the possibility of being singled out as targets of formal legal action because of their prominence within the industry (Brooks et al. 2003). This makes high-status firms more sensitive to the threat of formal regulatory forces. Conversely, low-status firms are more worried about their perception by peers and about improving their standing in the industry than about being singled out by the state. Hence, one can hypothesize that firm status moderates the effects of informal and formal forces on voluntarily disclosing wrongdoing in contrasting ways: An increase in firm status *weakens* the effect of informal forces, but it *strengthens* the effect of formal forces on the firm's decision to come forward and restate its earnings.

HYPOTHESIS 3A (H3A). *The strength of the positive relationship between informal forces and the likelihood of a firm's voluntarily restating its earnings will decrease with the firm's status.*

HYPOTHESIS 3B (H3B). *The strength of the negative relationship between formal forces and the likelihood of a firm's voluntarily restating its earnings will increase with the firm's status.*

Methods

Data

Because proper tests of the hypotheses require a broad range of control variables and industry variation, the companies were selected based on the population of companies in the Execucomp database, which

is composed of 2,532 current and past members of the S&P 1,500. The Execucomp database draws data from annual financial statements, proxy statements, and SEC 10-K annual reports. The S&P 1,500 consists of firms in the S&P 500, the S&P MidCap 400, and the S&P SmallCap 600.[1] In 2005, the index represented approximately 90% of U.S. market capitalization, with company capitalization varying from $40 million to $382 billion (median = $1.95 billion). By using current and past members of the S&P 1,500, our sample has asset ranges from $214,000 to $105 billion (median = $931 million). The sample is heterogeneous and encompasses nearly 100 four-digit SIC codes.

Thus, our sample contains only publicly traded firms that, while varied in size across the sample, are relatively large in comparison to the general population of U.S. firms. Currently there are approximately 9,600 publicly traded firms on U.S. stock exchanges (Harris and Bromiley 2007, O'Connor et al. 2006). Given that several studies have shown that smaller firms are more likely to restate their earnings than larger firms (e.g., Arthaud-Day et al. 2006, O'Connor et al. 2006, Palmrose et al. 2004, Palmrose and Scholz 2004, Richardson et al. 2002), our use of the S&P 1,500 should make for a more conservative sample for testing our hypotheses.

The list of restatements was taken from the 2002 U.S. GAO report, *Financial Statement Restatements*: *Trends, Market Impacts, Regulatory Responses, and Remaining Challenges* (*2002*). The GAO list has been used in several other studies of firm restatements, including Arthaud-Day et al. (2006), Harris and Bromiley (2007), Desai et al. (2006), Zhang et al. (2008), Srinivasan (2005), and the Huron Consulting Group (2003). Although ours is the only study to date to make voluntary restatements the main construct of interest, we follow the other papers in their use of the GAO database and its collection of restatements that are "indicative of intentional, manipulative, or fraudulent behavior" (Arthaud-Day et al. 2006, p. 4).

The GAO reported 919 firm restatement announcements from 845 firms in the six and a half year period ending June 2002 (and prior to the enactment of Sarbanes-Oxley). This corresponds to restatements of financial earnings for the 1994–2001 period. Firms in the database restated their earnings because of accounting irregularities including aggressive accounting practices, intentional misuse of facts, and fraud. Restatements prompted by benign reasons (oversight, stock splits, changes in accounting rules, human error, and discontinued operations) are not included in our sample. Of the 845 firms listed in the GAO report, 385 were in the S&P 1,500 and available through Execucomp. Of these, 170 were voluntary restaters; the remainder (215) had been forced to restate by the SEC. This sample size is similar to other studies that used the GAO database: Harris and Bromiley (2007) had a sample of 434 restaters; the Arthaud-Day et al. (2006) sample was 116; the Desai et al. (2006) sample was 477; the Zhang et al. (2008) sample was 225, and Srinivasan's (2005) was 264.

We conducted t-tests to check for differences between those firms labeled as voluntary restaters and the remainder of the sample. Tests on firm size (assets [$t = 1.42$, $p > 0.16$]), number of employees ($t = -0.03$, $p > 0.96$), firm performance (return on sales [$t = -0.14$, $p > 0.88$]), leverage ($t = -0.11$, $p > 0.91$), and overall firm health (Altman's Z-score (1968) [$t = 1.11$, $p > 0.26$]) showed no significant differences between our construct of interest and the rest of the sample.

To confirm that the restatements were prompted by aggressive and/or irregular behavior, three coders simulated the GAO search and classification process (see Harris and Bromiley 2007 and Zhang et al. 2008 for similar procedures). Using LexisNexis, 10-K statements, annual reports, and conversations with the GAO, the SEC, and other scholars involved in researching restatements, the coders investigated each company to determine the announcement date(s) of the expected restatement and the reason(s) for the restatement and recorded it. After completing 385 case studies, the coders confirmed that each company restated future earnings for aggressive and/or irregular reasons. In particular, the coders confirmed that instances of aggressive accounting practices in the sample were confined mostly to revenue recognition (40%) and cost or expenses (38%). The remainder of the restatements (22%) pertained to fraudulent accounting for in-process R&D, misclassification of assets, merger and acquisition accounting, and internal restructuring (GAO 2002).

At the same time, the coders labeled 170 of the 385 restatement events as voluntary. Voluntary restatements were deemed to occur when a firm proactively announced that it was restating earnings without prodding from the SEC. The GAO sample provided the announcement date of each restatement. After reading announcements via media wires and company reports, each coder independently labeled a restatement as "voluntary" or "forced." After conferring with each other, the coders agreed that 170 of announcements should be labeled voluntary, a slight increase from the 149 announcements labeled voluntary by the GAO. Whereas the coders used the same classification system used by the GAO, the small difference in labeling voluntary restatements prompted us to test our hypotheses with the GAO sample of 149 voluntary restaters; there was no change in results.

Dependent Variable

We measure firms' voluntary disclosure of wrongdoing by determining whether they voluntarily restated their earnings in a given year. The dependent variable, voluntary, is dichotomous and measured at the firm-year level.

Based on the widespread evidence of regulatory noncompliance (Pearce and Tombs 1992, Reed and Yeager 1996), rule bending (Veiga et al. 2004), and earnings management practices among U.S. public corporations (e.g., Bedard and Johnstone 2004, Gayer and Paterson 2001, Loomis 1999, Norris and Eichenwald 2002), we assume that all firms in the sample are at risk of restating their earnings for any given year. Indeed, nearly 10% of all firms restated their earnings because of intentional, manipulative, or fraudulent behavior in the 1997–2002 period (GAO 2002). Given regulators' time and resource constraints (cf. Braithwaite 1982, Hasnas 2007, Simpson 2002), the actual number of firms engaged in aggressive accounting practices during the period could be substantially larger. Thus, our sample of 170 voluntary restaters and the results of our tests of the effects of external forces on voluntary restatements should be conservative.

Independent Variables

We lagged each of our predictor variables to rule out reverse causality (Kenny 1979) and as a check against potential endogeneity (Wooldridge 2002). Given that our study examines the impact of previous informal and formal external forces on the likelihood of a firm voluntarily restating its earnings, we measure all of our variables at the four-digit SIC code level. The four-digit SIC code as a measure of a firm's industry has been used in other research on restatements (Arthaud-Day et al. 2006, Michel and Hambrick 1992, O'Connor et al. 2006, Wade et al. 2006). In general, use of a four-digit SIC code to measure like firms has a long tradition in organizational research (cf. Hambrick and D'Aveni 1988). As a robustness check, however, we also tested our hypotheses using a two-digit SIC code (cf. Wade et al. 2006) as well as the Huron Consulting Group's (2003) classification that put the restaters from the GAO list into eight different industries (cf. Zhang et al. 2008).

Informal Leader Forces. The impact of industry leaders' voluntarily disclosing governance violations is operationalized as the extent to which firms that previously voluntarily restated earnings held leadership positions in the industry. Past research has shown that leaders can be viewed in terms of performance and size (e.g., Haveman 1993, Haunschild 1994). *Performance leader* is a dichotomous variable that labels a firm "1" if it was in the industry's seventy fifth percentile or greater in return on assets (ROA) *and* also voluntarily restated its earnings in the prior year. Similarly, *size leader* is a dichotomous variable that labels a firm "1" if it was in the industry's seventy fifth percentile or greater in assets *and* also voluntarily restated its earnings in the prior year.

Informal Peer Forces. Peer disclosure of wrongdoing is operationalized as the number of previous voluntarily restatements by firms in a given industry. We measure the variable *peer restaters* as the count of voluntary restaters in a given industry in the prior year. Several organizational studies have used count variables as a measure of mimetic behavior, including Guillen (2002), Haveman (1993), and Haunschild and Miner (1997).

Informal Network Connections. Intermediaries connect firms indirectly, serve as transporters of information (Burt 1992, Gulati 1998, Uzzi 1996), and can facilitate diffusion of ideal behaviors (Davis 1991, Granovetter 1985, Haunschild 1994). In this research, network connections are operationalized using *shared auditor*, a dichotomous variable that returns "1" if another firm in the industry voluntarily restated its earnings previously *and* shared the same auditor with the firm in the prior year. Our measure is comparable to other measures in social network research that link behavioral similarities among firms to behavior expectations that were transferred by an indirect tie, i.e., a third-party conduit (e.g., Powell et al. 1996, Uzzi 1996).

Formal Regulatory Forces. Although formal regulatory forces can impose discipline on firms and induce them to conform through the threat of sanctions (Rao and Neilsen 1992, Scott 2001), these forces may have the opposite of their intended effect on voluntary behavior (cf. Simpson 2002). We measure regulatory forces (*forced restaters*) as the count of firms in a given industry that were previously forced to restate by the SEC in the prior year.

Status. We measure the variable *status* as the rank of the number of the firm's employees vis-à-vis other industry members. Size and rank have been measures of status or prestige in several institutional studies (e.g., Haveman 1993, Rindova et al. 2005, Terlaak and King 2006). In this paper, the firm with the *fewest* employees in the industry is ranked 1, and the firm with the *most* employees is ranked n, with n equal to the total number of firms in the industry.[2]

Control Variables

Firms' decisions to restate earnings may be influenced by individual and firm-level factors (Beneish 1999, Benoit 1995, Healy 1985, Richardson et al. 2002, Simpson 2002, Vandenbergh 2003, Zhang et al. 2008). Although our paper is different from other restatement research in that we focus solely on voluntary restatements, we recognize the importance of controlling for intrafirm indicators of financial restatements prevalent in other papers. To show the impact of informal and formal external forces above and beyond that of other intrafirm influences, we control for these pressures by using measures of executive compensation, number of audit meetings, firm size, firm leverage, firm performance, and multiple restaters. In addition, we control for the potential concentration in restatements by industry with dummy variables. Using a hazard model with

observations that all begin in the same year (1991) also implicitly controls for yearly changes in restatements, given that the estimation procedure accounts not only for the likelihood of a restatement occurring, but also for its timing (Cleves et al. 2004, Tuma and Hannan 1984).

Option Percentage. Linking pay to performance can often lead to risky strategies and decision making (Larcker 1983, Wiseman and Gomez-Mejia 1998), which in turn may induce firms to avoid voluntarily restating their earnings. Because the restatements in our sample negatively impact stock prices (GAO 2002), managers with options the value of which depends on stock prices would likely avoid voluntarily disclosing their illegitimate behavior. The variable *option percentage* measures option compensation as the ratio of the top management team's mean option value to total compensation (salary + bonus + options + additional income). Stock options are normally valued using either the Black-Scholes model or the SEC method. We opt for the Black-Scholes method because of its prevalence in capital markets models and its time-honored (30-plus years) position as a proper measure of stock option value (Wade et al. 2006).

Number of Audit Committee Meetings. Corporate governance research has also shown a negative relationship between the number of annual audit committee meetings and the likelihood of a firm restating its earnings (O'Connor et al. 2006), as well as the likelihood of white-collar crimes (Schnatterly 2003). Our variable, *audit committee meetings*, is the number of meetings each year for each firm in our sample for the 1994–2001 period.

Firm Size. As we mentioned above, several studies on restatements have shown that smaller firms are more likely to restate their earnings than larger firms (e.g., Arthaud-Day et al. 2006, O'Connor et al. 2006, Palmrose et al. 2004, Palmrose and Scholz 2004, Richardson et al. 2002). Although our sample from the S&P 1,500 inherently represents firms that are larger than many other publicly traded firms, we still control for size within the sample. Our variable, *assets*, measures the annual year-end asset total for each firm over the eight-year period.

Firm Leverage. Restatement research has also shown a positive link between higher debt levels and a greater likelihood of a firm restating its earnings (Palmrose et al. 2004, Richardson et al. 2002). We measure *leverage* as the ratio of a firm's long-term debt to its assets.

Firm Performance. Previous firm performance may influence a firm's desire to voluntarily disclose wrongdoing. That is, firms that are performing well may be less worried about the negative implications of coming forward, but poorly performing firms may fear the harmful effects on performance and thus decide to conceal their transgressions (Troy et al. 2005, Wiseman and Gomez-Mejia 1998).

Performance may also affect legitimacy. High performing firms may be viewed as more legitimate, ceteris paribus, given their ability to better acquire resources (Deephouse 1996, Fombrun 1996). Similarly, poor performing firms may have a negative image among stakeholders, which would hurt their legitimacy, irrespective of how they are conforming to social norms and expectations. In our model, we control for firm performance with the variable *ROA*. Because ROA is less sensitive to a firm's capital structure than other financial measures (e.g., return on equity), it allows for better comparisons across firms (Michel and Hambrick 1992).

Multiple Restaters. We recognize that multiple restatements by a given firm can have an undue impact on the focal firm's and other firms' likelihood of voluntarily disclosing wrongdoing. We therefore add a third control variable for the impact of multiple restatements by one firm. *Multiple restatements* is a dichotomous variable coded "1" subsequent to a firm's second restatement. Specifically, all firm years beginning with a firm's second restatement receive a "1," while those prior to it are coded "0." This allows for more nuance than simply labeling all firm years "1" for those firms that restated more than one year of earnings, regardless of the timing of the event.

Estimation Procedures

We use the Cox proportional hazards regression model to test our hypotheses (Cox 1972). The Cox model asserts that the hazard rate for the jth subject in the data i

$$h(t \mid x_j) = h_0(t) \exp(x_j \beta_x),$$

where x is a vector of independent variables and the β_x are the regression coefficients to be estimated from the data (Cleves et al. 2004). Hazard models in general account for the probability as well as the timing of an event (Tuma and Hannan 1984). For our purposes, we measure the impact of social and regulatory external forces on the likelihood that a firm voluntarily disclosed wrongdoing and restated its earnings in a specific year during the 1994–2001 time period.

Cox models, unlike parametric hazard models (e.g., Weibull or Gompertz), make no assumptions about the shape of the hazard over time (Cleves et al. 2004). Fewer restrictions allow for flexibility in analyzing longitudinal data where hazard shape assumptions are difficult to make. Because of this, the Cox model provides a conservative test of regression coefficients. Other hazard models may distort the estimated hazard rate, and thus may be less reflective of the data if our assumptions of the shape of the hazard curve turn out to be incorrect (Cleves et al. 2004, Hellman and Puri 2000). The Cox model also produces high-quality estimates in

large-sample studies, even when most observations are censored (Ferrier et al. 1999, p. 381, Tuma and Hannan 1984). Finally, the Cox model allows for serial correlation through the use of time-varying covariates (Ferrier et al. 1999). Given that our sample consists of pooled time series data with repeated measures, this feature of the Cox model allowed us multiple observations of the same firm that are not independent across time periods.

Results

Table 1 presents descriptive statistics and a correlation matrix for the covariates and control variables used in our survival analysis.

Columns 1–6 of Table 2 report the results of the Cox proportional hazard model as well as the hazard ratios (HRs) for each of the models. We refer to column 1 when discussing the main effects of social and regulatory external forces on voluntary disclosure of wrongdoing (H1A, H1B, H1C, H1D, and H2). Columns 2–6 report the various moderating effects of the firm status (H3A and H3B).

Hazard model coefficients, because they are derived from logarithmic calculations such as the one shown in the equation above, are difficult to interpret beyond their sign and significance; thus, reporting HRs allow us to determine the effect of each covariate on predicting voluntary restatements. HRs range from 0 to positive infinity and tell us how much the likelihood of voluntarily restating will increase ($HR > 1.00$) or decrease ($HR < 1.00$) for a unit increase in an independent variable. HRs greater than 1 correspond to a positive coefficient and thus a positive relationship between a predictor and dependent variable. HRs between 0 and 1 correspond to a negative coefficient, an inverse relationship between the independent and dependent variable. For example, performance leaders that voluntarily restated in the prior year significantly increased the likelihood of the firm voluntarily restating its earnings by more than four times ($HR = 4.19$). In contrast, the number of firms previously forced to restate their earnings decreased the likelihood of the firm coming forward by 22% ($HR = 0.78$).

Note, however, that although HRs, like odds ratios in logistic regression, determine the effect of a particular covariate on the dependent variable, one cannot determine the covariate's significance from the HR (cf. Pedhazur 1997, Roncek 1991). Thus, HRs near 1 simply tell us that the effect on the likelihood of voluntary restatements is low, but it may or may not be significant as determined by a threshold of p, say 0.05 or 0.01. In contrast, HRs much larger or smaller than 1 depict a greater effect on the likelihood of voluntary restatements (positively and negatively), but their greater effect does not necessarily translate into significance.

H1A tested the effects of performance leaders' behavior on the firm's likelihood of coming forward and restating earnings. Industry performance leaders that previously voluntarily restated their earnings increased the likelihood that a firm will follow suit. This HR corresponds to more than a fourfold increase in the likelihood of the firm coming forward ($HR = 4.19$; $p < 0.001$).

Similarly, H1B tested the influence of size leaders' behavior on the likelihood of the firm voluntarily restating its earnings. Like performance leaders, size leaders had an impact on the probability that firms in the leaders' industry would voluntarily restate earnings ($HR = 3.56$; $p < 0.001$). Thus, industry leader decisions to voluntarily come forward and restate earnings appears to have an impact on the firm's decision to voluntarily restate.

H1C focused on the effects of the informal peer forces on a firm's likelihood of voluntarily restating and disclosing wrongdoing. Our results support this hypothesis. Namely, as the number of prior voluntary restaters in an industry increases, so does the likelihood that a firm in that industry will voluntarily restate its earnings. By examining the HR, we see that a one-unit increase in previous voluntary restaters increases the likelihood of the firm coming forward by nearly one-and-a-half times ($HR = 1.42$; $p < 0.05$).

Table 1 Descriptive Statistics and Correlations

Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12
1. Voluntary	0.01	0.09												
2. Option pct.	0.34	0.26	0.03**											
3. Audit mtgs.	7.19	3.12	0.03**	0.05**										
4. Assets (000)	7.82	35.13	−0.01	0.02*	0.09**									
5. Leverage	3.32	23.00	0.00	−0.04**	0.03**	0.09**								
6. ROA	2.18	20.63	−0.02**	−0.04**	−0.11**	0.00	0.00							
7. Multi. restate.	0.02	0.14	0.24**	0.03**	0.03**	0.00	0.00	0.00						
8. Perf. leader	0.00	0.04	0.21**	0.01	0.01	0.00	0.00	−0.03**	0.10**					
9. Size leader	0.00	0.06	0.27**	0.02*	0.06**	0.00	0.00	−0.01	0.18**	0.35**				
10. Peer restaters	0.18	0.48	0.09**	0.19**	0.06**	−0.01	−0.02	−0.06**	0.05**	0.09**	0.13**			
11. Shared auditor	0.01	0.07	0.15**	0.06**	0.03**	−0.01	−0.02*	−0.05**	0.06**	0.03**	0.09**	0.14**		
12. Forced restaters	0.25	0.76	0.01	0.19**	0.06**	0.01	0.00	−0.07**	0.05**	−0.01	−0.01	0.42**	0.05**	
13. Status	9.22	12.06	0.00	0.14**	0.12**	0.19**	0.04**	0.01	0.02**	−0.01	0.02**	0.40**	0.13**	0.44**

*$p < 0.05$; **$p < 0.01$.

Table 2 Cox Proportional Hazard Model Results for Voluntary Restatements

Variable	Model 1 HR	Model 2 HR	Model 3 HR	Model 4 HR	Model 5 HR	Model 6 HR
Controls						
Option percentage	1.36	1.36	1.41	1.98	1.30	1.31
Audit committee mtgs.	1.05*	1.09***	1.08***	1.08***	1.07**	1.07**
Assets	1.00*	1.00	1.00	1.00†	1.00	1.00
Leverage	1.00	1.00	1.00	1.00	1.00	1.00
ROA	1.00	1.00	1.00	1.00	1.00	1.00
Multiple restatements	16.13***	13.41***	13.75***	13.42***	14.83***	14.70***
$Predictors_{(t-1)}$						
H1A: Perf. leader	4.19***	7.60***	4.32***	5.02***	4.32***	4.32***
H1B: Size leader	3.56***	4.54***	8.24***	4.96***	4.18***	4.40***
H1C: Peer restaters	1.42*	1.58**	1.51*	2.33***	1.59**	1.57**
H1D: Shared auditor	5.77***	9.18***	10.78***	9.81***	6.85***	8.25***
H2: Forced restaters	0.78*	0.86	0.80†	0.88	0.87	0.83
$Interactions_{(t-1)}$						
Status		0.98	0.99	1.01	0.97*	0.97**
H3A: Status ∗ perf. leader		0.93†				
H3A: Status ∗ size leader			0.95**			
H3A: Status ∗ peer restaters				0.97***		
H3A: Status ∗ shared auditor					1.00	
H3B: Status ∗ forced restaters						1.00
Observations	12,145	11,694	11,694	11,694	11,694	11,694
Subjects	2,395	2,352	2,352	2,352	2,352	2,352
Log-likelihood	−902.40	−882.93	−881.31	−876.32	−885.07	−885.09
χ^2	311.75	324.79	328.02	338.01	320.51	320.46

†$p < 9.10$; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$; two-tailed tests.

Our results also support our test of the impact of indirect industry network connections (H1D) on a firm's decision to voluntarily restate its earnings. Specifically, industry peers that voluntarily restated and shared the same auditor with the firm increase the likelihood that the firm will come forward and restate its earnings. The HR corresponding to this result shows a near sixfold impact on the firm's coming forward ($HR = 5.77$; $p < 0.001$). Leaders, peers, and network connections therefore have significant impact on the future likelihood of a firm disclosing wrongdoing through the voluntary restatement of earnings.

As we have mentioned, firms can also be forced to restate by regulatory bodies like the SEC. *Forced restaters* is a measure of the number of firms in the industry in the prior year that have been coerced to restate their earnings. Our results support the prediction we made in H2, that industry members who were previously forced to restate would have a negative impact on future voluntary restatements of earnings. Previous forced restaters decrease the likelihood of the firm coming forward by 22% ($HR = 0.78$; $p < 0.05$).

Finally, our tests of the moderating role of status on the effects of informal and formal forces show some support for Hypothesis 3A. Specifically, an increase in status negatively affects the impact of performance and *size* leaders on the voluntary restatement of earnings, as we predicted (Table 2, Model 2: $HR = 0.93$, $p < 0.10$; Table 2, Model 3: $HR = 0.95$, $p < 0.01$), although it appears the significance for performance leaders is only marginally significant. In addition, an increase in status also negatively affects the impact of peers on voluntary restatement of earnings (Table 2, Model 4: $HR = 0.97$, $p < 0.001$). Thus, high-status firms are more likely to resist the pressures of industry leaders and peers. Last, our tests of the moderating impact of status on the effects of network connections and forced restaters on the likelihood of voluntary disclosure were nonsignificant (Table 2, Models 5 and 6).

Robustness Checks

Note that our results are robust across several variable proxies and analyses. First, to check our theory that informal social forces rather than formal regulatory forces drive voluntary decisions, we reran the models with forced restaters as our 0/1 dependent variable. None of our hypotheses was supported. In fact, the count of previous voluntary restaters decreased the likelihood of future forced restaters by about 40%, and the number of previous forced restaters in an industry nearly doubled the chances of future forced restatements. These two results are the inverse of those in Table 2 and suggest that previous volunteers do not increase forced restatements, but that previous forced restatements may encourage regulators to further investigate a given industry.

We also substituted several alternative measures of constructs to check for consistency. We alternated the number of employees for assets in measuring our size

leader variable (H1B) and changed the percentile from the seventy fifth to the nineteenth for both the size and performance leader variables. Results were unchanged. Peer (H1C) and forced restaters (H2) were measured using a cumulative sum of prior voluntary and forced restaters with no impact on results. We tested our network hypothesis (H1D) with a network centrality that counted the number of ties to auditors among voluntary restaters (cf. Lee and Pennings 2002), and our results stayed largely unchanged. We also used rank measures of assets and ROA in place of employees in measuring our status variable (H3A, H3B).

Regarding the robustness of our results across different measures of our sample, we ran the model using the 149 restaters labeled voluntary by the GAO in place of our 170. Results remained substantively the same. Given that our results are contingent on the behavior of like firms, we also ran tests using Huron's eight-industry classification, two-digit instead of four-digit SIC codes, as well as models that dropped (1) industries with fewer than three members and (2) industries that contained no restating firms. These alternative measures did not affect our results. Next, we were sensitive to the strong rise in restatements over the last few years (Huron Consulting Group 2002). Scholars such as Wu (2002) and Richardson et al. (2002) reported that financial restatements trebled from the 1994–1997 to 1998–2001 periods, and the Huron Consulting Group (2002) noted a 22% increase in restatements from 2001 to 2002 alone. Specifically, we broke the sample into two periods: the 1994–1997 period and the 1998–2001 period. The results for each period were very similar. Last, given the nature of our dependent variable and longitudinal design, the analysis was run using discrete event history techniques as well as other types of parametric hazard models. Specifically, we ran repeated measures of logit and probit models with robust estimators of variance in place of the Cox model. Although our results with the discrete time event history techniques were often stronger, we report the Cox regressions to show that our results are robust under a more conservative test.

Discussion

In this paper, we link research on corporate governance, restatements, and firm compliance by developing and testing theory of the effects of informal social and formal regulatory forces on the likelihood that a firm will come forward and disclose its past wrongdoing through the voluntary restatement of its corporate earnings. Voluntary disclosure of past wrongdoing may be a critical first step for a firm in repairing its reputation and legitimacy in the eyes of its stakeholders (Pfarrer et al. 2008), as well as in fostering a healthier, more dynamic, and trusting business environment.

Seeking to explain the reasons for white-collar crime and corporate corruption, previous organizational and corporate governance research has identified a number of factors, such as companies' slack, culture, compensation, and ethics that may induce firms to break the law (e.g., Baucus 1994, Coleman 1987, Finney and Lesieur 1982). However, these studies focused almost entirely on explaining the internal firm-level reasons that may be conducive to white-collar crime and corruption and have not examined what external forces could lead companies toward recovery and public rehabilitation after they have undertaken some illegal activities.

In addition, accounting research on restatements, while vast, has yet to explore the social and regulatory forces that influence the likelihood of a firm restating its earnings, nor has it investigated the impact of these informal and formal sanctions on the likelihood of a firm *voluntarily* coming forward and admitting wrongdoing. Thus, the contribution of this study lies in its focus on explaining and testing how external social and regulatory factors induce firms' voluntary disclosure of past wrongdoing as measured by voluntary restatement of earnings. Prior research on corporate governance and compliance has not examined how formal and informal external forces affect a firm's decision to voluntarily disclose past wrongdoing; prior research on financial restatements has not isolated voluntary restatements as a key construct, nor has it tested how formal and informal external forces influence the likelihood of a firm voluntarily disclosing wrongdoing. In total, our findings highlight the importance of informal and formal social forces in shaping voluntary behavior and hence contribute to explaining how policy makers and managers may facilitate self-disclosing behavior in industries experiencing compliance problems. The research also directly contributes to the accounting literature on restatements with its emphasis on predicting voluntary behavior and the role of external firm forces.

We find that both industry-level self-regulatory mechanisms and formal sanctions can influence the firm's decision to come forward and admit its malfeasance, albeit in opposite ways. We demonstrate the positive impact of four informal social forces (via imitation of performance and size leaders, peers, and diffusion of information through indirect network connections) on the likelihood of voluntary disclosure of past wrongdoing. In contrast, our study finds a negative impact of formal regulatory forces (via direct government intervention) on the likelihood of a firm coming forward and disclosing wrongdoing. It also establishes that higher firm status reduces the impact of certain industry leader and peer pressures on coming forward.

Why do informal social forces and government-imposed sanctions affect the disclosure of corporate wrongdoing in different ways? It appears that informal forces may validate certain types of normative behavior and increase the likelihood that firms will disclose their wrongdoing and make an effort to change their

illegitimate practices. Conversely, formal sanctions may be counterproductive, as they may instill extreme fear of punishment and make voluntary disclosure of past wrongdoing unlikely.

Our study extends corporate governance research by demonstrating that informal social forces can prompt firms to undertake voluntary actions (e.g., follow peers, leaders, and network associates who had voluntarily restated earnings), even though this may negatively affect their legitimacy in the short run. However, firms may be motivated to undertake actions that may temporarily put them at a disadvantage because they have observed industry leaders, peers, and network members emerging from the same predicament even stronger than before. Ultimately, such self-regulatory mechanisms may allow firms to boost their long-term legitimacy and, hence, the legitimacy of the industry as a whole.

Institutional theorists have emphasized that imitative behavior often occurs under conditions of uncertainty (DiMaggio and Powell 1983, Haunschild and Miner 1997, Haveman 1993), that is, when the outcome of a course of action is unknown (Mizruchi and Fein 1999). In our research, we predicted that prior voluntary restatements of industry leaders, peers, and network members would reduce potential restaters' uncertainty about the consequences of their actions. Future research should investigate other settings and decisions where uncertainty may drive the emergence of informal norm-setting behavior, such as product quality, safety standards, and advertising norms.

We also found that companies associated through indirect social ties, such as sharing a connection to the same accounting firm, may develop some common patterns of behavior. It is possible, however, that all the restating companies could have simply received the same recommendation from their auditor. Future research should examine whether other types of social network ties, including belonging to the same boards, educational institutions, and professional associations would affect a firm's decision to voluntarily disclose its past wrongdoing.[3] If these results are similar to ours, it would indicate that indirect informal connections and information flows from third-party conduits rather than direct accountants' recommendations affect the likelihood of voluntary disclosure.

The results also supported our hypothesis that formal regulatory forces have a negative rather than a positive effect on the likelihood of firms' coming forward and voluntarily disclosing wrongdoing. This supports the idea that official sanctions do not serve as a strong deterrent to corporate misconduct (cf. Simpson 2002). Of course, it is possible that when many industry members are forced to restate, other firms that have not been sanctioned simply stop their aggressive accounting practices. Our robustness analysis discovers, however, that prior forced restatements are positively related to the likelihood of more forced restatements in the future. Thus, formal sanctions beget more formal sanctions. At the same time, prior forced restatements are negatively related to the likelihood of firms' voluntarily disclosing wrongdoing (Table 2), and prior voluntary restatements are negatively related to the likelihood of future forced restatements. These results taken together suggest that formal forces alone neither increase the likelihood of future voluntary disclosure of wrongdoing nor occur as a result of previously coming forward. Hence, formal sanctions alone do not appear to accomplish their objective of eradicating faulty financial practices.[4]

We also find that the effects of leaders' and peers' past actions on the likelihood of a firm voluntarily disclosing wrongdoing depend on the focal firm's status. Thus, peer pressures have a lower impact on higher-status firms than on lower-status firms. Although these interactions do not show a strong effect, they nonetheless indicate that status may influence firms' decisions to heed or disregard informal social forces.[5]

A particular strength of this study is that it has examined a very specific type of corporate misconduct or wrongdoing: the voluntary restatement of earnings. Specifically, we emphasized the effects of informal and formal forces on voluntary disclosure of wrongdoing for which the firm was directly responsible. This focus is a strength from a research control point of view, but future governance and compliance research could be enhanced by examining voluntary behavior associated with other types of behavior, for example, accidents, errors, or even deliberate actions directed *at* the firm (cf. Marcus and Goodman 1991, Zhao and Olivera 2006). Would the influence of social and regulatory forces on the likelihood of coming forward and acknowledging the impact of these unfortunate events prove to be as strong as what we have seen in this research?

Similarly, it would be interesting to test the limits of the impact of informal social forces on decision making. Given that voluntarily coming forward and disclosing wrongdoing appears to be a negative event, albeit a less negative one for the firm than concealment of negative information (e.g., Akhigbe et al. 2005), it is important to examine why some firms may not disclose negative information about themselves despite strong informal industry pressures. Research on diffusion of responsibility (e.g., Darley and Latane 1968, Jones and Foshay 1984), attention (e.g., Hoffman and Ocasio 2001, Ocasio 1997), and abandonment (e.g., Abrahamson and Fairchild 1999, Rao et al. 2001, Strang and Macy 2001) may help address key questions related to voluntary disclosure of wrongdoing. Do firms fail to come forward because they feel a sufficient number of others have, thus bearing the brunt of attack for them? After enough volunteers come forward, do the regulators', media's, and public's attention wane? Or do firms choose not to

come forward because they see that the benefits of volunteering are really not that great? Of course, firms may also voluntarily come forward and admit to wrongdoing to stave off regulatory inquiries that may uncover more egregious behavior. Our data, like other studies of restatements and firm compliance (e.g., Arthaud-Day et al. 2006), do not allow us to uncover managerial motives for disclosing wrongdoing. Future research that has access to managerial reasoning for voluntarily restating earnings or admitting other forms of corporate wrongdoing could achieve that goal.

Another strength of our study was that our sample of restaters comes from those firms that are members of the S&P 1,500, which represents nearly 90% of the U.S. stock market capitalization. However, that the sample also omits about 8,100 other public firms is a limitation. Like other published papers that have used the GAO database, our findings are based on a sample that contains just under 50% of the firms that materially restated earnings during the 1997–2002 period. The firms that have been omitted are in general smaller and less widely traded than those in our sample. Although past research has shown a direct negative relationship between firm size and the likelihood of restatements (e.g., Arthaud-Day et al. 2006, O'Connor et al. 2006, Palmrose et al. 2004, Palmrose and Scholz 2004, Richardson et al. 2002), thus making our tests potentially more conservative, we nevertheless recognize the importance of a broader sample to help generalize our results as well as findings to related research.

Our study was also completed prior to the passing of the Sarbanes-Oxley Act of 2002. Whereas this helps us isolate the effects of informal and formal forces on voluntary disclosure of wrongdoing, Sarbanes-Oxley certainly has had ramifications that may influence future corporate behavior subsequent to a negative event.[6] Do informal social forces in the post-Sarbanes-Oxley period have even more of a positive effect on voluntary restatements, and do formal forces have an even stronger negative effect, causing firms to recoil from legal sanctions and not disclose wrongdoing? Or do the new laws encourage more firms to come forward, thus acting as an effective deterrent, or perhaps as an impetus for firms to admit to lesser wrongdoing in an effort to cover up more egregious behavior? Such focused research might help society judge the effectiveness of formal regulatory action.

Finally, to examine the effects of hard versus soft deterrence pressures on firm compliance, we tested both of these effects with separate hypotheses and compared the results. However, as mentioned previously, empirical tests of this hard versus soft approach to corporate compliance is rather new (cf. Short and Toffel 2008, Vandenbergh 2003). Some empirical compliance research has shown that enforced self-regulation, i.e., the combination of informal social pressures with the threat of legal sanctions, works better than either of them alone (Ayres and Braithwaite 1992, Braithwaite and Makkai 1991, King and Lenox 2000, Paternoster and Simpson 1996, Short and Toffel 2008, Simpson 2002, Vandenbergh 2003). Extending the carrot-and-stick approach to other organizational samples of corporate wrongdoing should facilitate generalization of these findings.

We hope that our findings serve as an anchor point for future research on voluntary disclosure of wrongdoing as well as the multiple factors that impact this difficult decision. Understanding the causes and consequences of the voluntarily disclosure of corporate wrongdoing could enhance corporate governance in these types of situations and affect the design of public policy. By identifying the extent to which voluntary disclosure of wrongdoing is based on the imitation of other firms' behavior, we begin to inform social, legal, and normative bodies of the informal social and formal regulatory forces that affect the proclivity of firms to come forward and take the path of change and renewal. Further, by examining industry's promotion of self-correcting voluntary behavior, we can possibly predict cascading, noncoercive regulatory effects in other social settings. Understanding the effects of these forces could have significant impact on the self-regulatory mechanisms embedded in different industries and stimulate voluntary behavior that would lead to the resolution of other social problems.

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Endnotes

[1]More detailed information is available at http://www.standardandpoors.com/indices.

[2]Note that rank is often reverse coded (i.e., the firm with the most employees in the industry is ranked 1 (cf. Rindova et al. 2005)). However, to properly interpret the effect of status on the other independent variables, we have *not* reverse coded rank. Thus, we interpret a negative coefficient on the interaction term as signifying that an increase in status decreases the impact of the informal regulatory influences on the firm's decision to voluntarily restate, but further increases the impact of formal pressures. In addition, the interactions between status and the other covariates are standardized. Rank variables are

rectangularly distributed; that is, the magnitude in the difference between a rank of 1 and 2 and 4 and 5 may not be equal and is effectively unknown. Consequently, ranked variables are unlikely to produce linear relationships with other variables (Cohen and Cohen 1983). By standardizing the interactions, we provide better interpretation of the results.

[3]Six accounting firms accounted for 99.4% of the restatements in our sample. Of these six, a binomial probability test revealed that one (PricewaterhouseCoopers—PWC) was involved in significantly more restatements than would be expected, given the percentage of companies each represented in the entire sample. For example, PWC represented 20.1% of all firms in the sample, but 27.9% of restating firms ($p < 0.001$). We reran our data controlling for these differences and found no change in results. Thus, there is no "PWC effect" to overshadow the network relationship between firms that shared an auditor and also voluntarily restated earnings. In addition, recent research has shown that there was also no "Arthur Andersen effect"; that is, there is no evidence that Andersen presided over more restatements than other Big 6 firms during this time period (Eisenberg and Macey 2004). This is consistent with our findings.

[4]It is also important to note that in our sample, the SEC did not consistently target specific industries. That is, there is no systematic evidence across different SIC codes that all the restaters in a given industry were forced to restate, thereby leaving no one to voluntarily come forward. We did, however, still control for year and industry in our analysis.

[5]In a post hoc test, we also found a negative direct effect between a firm's status and the likelihood that it would voluntarily restate its earnings ($HR = 0.97$; $p < 0.01$).

[6]Since its enactment, industry leaders have sought to reduce what they feel are exorbitant costs imposed by Sarbanes-Oxley (Keating 2006; Ip 2006; Johnson 2006a, b; Schuman 2006). Recent industry evidence shows that since June 2002, this legislation has "raised the cost of being public" (Ip 2006, p. C1). Specifically, implementation costs have ranged into the millions for some firms (Keating 2006), and implementation hours are near 23,000 per year (Keating 2006). In addition, premiums of foreign shares listed on U.S. exchanges have dropped 20 percentage points, to 31%, since 2002 (Ip 2006), and delistings have increased while overseas firms' initial publis offerings in U.S. markets have dropped (Ip 2006). These issues, coupled with increases in prosecution and litigation, have caused many corporations to lament that the Sarbanes-Oxley Act is causing the United States to lose its competitive edge (Ip 2006, Johnson 2006a). A move is now afoot among public corporations to roll back some of the provisions in the Act (Pearlstein 2006, Schuman 2006), most notably section 404, which requires firms to review and assess their internal controls to ensure reliable and accurate financial reporting, outlines the implementation of a firm code of ethics, and stipulates the composition of boards and audit committees. Coupled with an overarching feeling among public corporations that they are overregulated and that the United States needs to move to a more streamlined relationship between the SEC and industry's self-regulating bodies (NYSE, NASD) (Smith and Scannell 2006), it would be interesting to see if the pattern and type of restatements after June 2002 is different from the one in our sample.

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