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Reputation Repair After a Serious Restatement

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ABSTRACT: How do firms repair their reputations after a serious accounting restatement? To answer this question, we review firms' press releases and identify 1,765 reputation-building actions taken by: (1) 94 restating firms in the periods before and after their restatement; and (2) a set of matched control firms during contemporaneous periods. We posit that firms have incentives to target multiple stakeholders in a reputation repair strategy—including capital providers, customers, employees, and geographic communities—and that actions targeting each group generate positive market returns as reputation capital is repaired. Consistent with our predictions, the frequency of, and stock returns to, reputation-building actions are greater for restating firms in the period after their restatement than for the control groups. In addition, firm characteristics predict the types of stakeholders targeted by firms. Finally, actions targeted at both capital providers and other stakeholders are associated with improvements in the restating firm's financial reporting credibility.

Keywords: *corporate reputation; accounting restatements; reputation repair; corporate social responsibility; earnings credibility*.

Data Availability: *The data used in this study are available from the sources indicated*.

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I. INTRODUCTION

How do firms respond to a significant loss of reputation and stakeholder trust stemming from a reporting scandal such as a serious accounting restatement—that is, a restatement correcting intentional misreporting or irregularities?[1] Cumulative reputation-related losses from an accounting violation are estimated to be 27 percent of a firm's pre-restatement market value and comprise two-thirds of a firm's total restatement-related value destruction (Karpoff, Lee, and Martin 2008a). We examine the nature and the efficacy of remedial actions taken by such tainted firms to repair their damaged reputations.

In our context, a firm's *reputation* represents stakeholders' collective expectation about management's intent and ability to fulfill its commitments. Borrowing from Karpoff (2011), and following the theoretical models of Klein and Leffler (1981) and Shapiro (1983), we define *reputation capital* as an intangible asset equal to "the present value of the improvement in net cash flow and lower cost of capital that arises when a firm's counterparties trust that the firm will uphold its explicit and implicit contracts, and will not act opportunistically to their detriment" (Karpoff 2011, 363). Reputation-related market losses that occur around an accounting scandal are due to increased uncertainty and diminished expectations among stakeholders about the firm's intent and ability to uphold its commitments. Specifically, reputation capital is devalued due to: (1) expected increases in financing costs imposed by capital providers; (2) expected increases in the costs of transacting with a firm's other stakeholders, including customers, employees, and the geographic communities in which the firm operates; and (3) expected decreases in future cash flows from sources such as lost sales, abandoned projects, and increased litigation (Karpoff et al. 2008a; Murphy, Shrieves, and Tibbs 2009; Karpoff 2011).

We draw from the literature in accounting, finance, economics, and management to develop four hypotheses about how managers repair the firm's reputation after a serious restatement. First, we expect that the frequency of reputation-building actions increases after the restatement. More specifically, we predict that reputation-building actions are directed not only toward capital providers, but also toward the firm's customers, employees, and geographic operating communities. Second, we hypothesize that the extent to which management targets its customers, employees, or operating communities correlates to the degree to which a firm derives value from its reputation with each set of constituents. In particular, we predict that: (1) firms that sell durable products or long-term services target customers; (2) firms with organized or highly specialized workforces target employees; and (3) firms operating in many locations target local communities. Third, we expect that reputation-building actions directed toward capital providers, as well as those directed toward other stakeholders, generate positive abnormal returns as reputation capital is rebuilt. Finally, we posit that reputation-building actions improve investors' perceptions about the firm's financial reporting credibility.

We first predict the types of reputation-building actions that we expect firms to take after a restatement, and then evaluate these predictions using a sample of firms with serious restatements. We execute a difference-in-differences research design by evaluating restating firms in the periods before and after their restatement as compared to a set of matched firms during contemporaneous periods. We draw from various literatures to identify five specific types of reputation-building actions directed toward capital providers: (1) improving governance; (2) firing senior leadership; (3) improving incentive or internal control systems; (4) reorganizing the firm; and (5) repurchasing

[1] As discussed by Hennes, Leone, and Miller (2008), "irregularities" involve intentional misreporting, whereas "frauds" involve detrimental reliance by financial statement users. Herein, we use the terms "serious restatement" or just "restatement" synonymously to refer to a restatement involving intentional misreporting. Although few restatements are likely to be frivolous, restatements due to unintentional misreporting do not fall under our definition of a "serious restatement."

stock. We draw primarily from the management literature to identify the types of actions that managers frequently take to repair reputation with customers, employees, and operating communities.

Our sample is based on the set of firms identified by Hennes et al. (2008) to have had a restatement involving irregularities between January 1997 and July 2006. Given the significant data collection required to perform our analysis, from a feasible set of 188 restatements we randomly select a sample of 94 (50 percent) for investigation. We review all press releases issued by these 94 firms from one month before to one year after the restatement, which we label the "post-restatement period," as well as during a one-year pre-restatement control period. To complete the difference-in-differences design, we review press releases issued by a sample of matched control firms during contemporaneous periods. We evaluate the frequency and effectiveness of multi-stakeholder reputation repair strategies by analyzing the restating firms' post-restatement announcements relative to announcements from the restating firms during the pre-restatement period as well as to announcements from matched control firms.

We find significant increases in the number of reputation-building actions directed toward both capital providers and other stakeholder groups following restatements. The average restating firm takes 0.31 (0.70) actions directed toward capital providers (other stakeholders) in each quarter of the pre-restatement period. These averages rise to 2.20 (1.44) actions in the first post-restatement quarter and remain higher than the control period over the next three quarters. Matched control firms take 0.31 (0.44) actions directed toward capital providers (other stakeholders) in each quarter of the pre-restatement period, and there is no significant increase in actions in the post-restatement period. We also find evidence consistent with our predictions that: (1) firms that sell durable products target customers; (2) firms with organized or highly skilled workers target employees; and (3) firms operating in many locations undertake more community-focused actions.

We measure the immediate effects of reputation recovery with two-day abnormal market returns surrounding announcements of reputation-building actions. We find that returns around announcements of actions by restating firms in the post-restatement period are significantly higher than returns to similar actions taken by restating firms in the pre-restatement period and returns for matched control firms in both the pre- and post-restatement periods. These results are consistent with investors viewing these actions as value-increasing as the firm's reputation capital is rebuilt.

Finally, we investigate changes in financial reporting credibility by examining quarterly earnings response coefficients (ERCs). All else equal, short-window ERCs are an increasing function of the expected quality of firms' financial statements (Holthausen and Verrecchia 1988).[2] We find that the pre-/post-restatement difference-in-differences in ERCs for the firms that take more versus fewer repair actions is significantly positive, which is consistent with the actions improving the credibility of the firm's reported numbers. The ERC effects of actions directed toward capital providers and other stakeholders are similar, which highlights the importance of a multi-stakeholder strategy in reputation repair.

Much of the existing research on restatements has examined the processes by which relationships with the stakeholders are damaged (Dechow, Sloan, and Sweeney 1996; Palmrose, Richardson, and Scholz 2004; Karpoff et al. 2008a, 2008b; Beneish 1999a) and the implications of relationship damage such as higher cost of capital (Hribar and Jenkins 2004; Kravet and Shevlin 2009; Graham, Li, and Qiu 2008). A number of papers have examined leadership and governance changes after a restatement without explicitly linking the actions to reputation repair (Beneish 1999a; Agrawal, Jaffe, and Karpoff 1999; Arthaud-Day and Certo 2006; Srinivasan 2005). A few papers have examined specific actions that firms take to repair damaged relationships with

[2] Section IV provides further details on the link between reporting credibility and earnings responses.

stakeholders and whether such repair strategies are successful. Farber (2005) finds that firms change the composition of their boards of directors after a restatement, and that these changes are associated with positive long-window abnormal returns. Cheng and Farber (2008) show that reducing the CEO's option-based compensation after a restatement leads to less risk taking and improved profitability. Wilson (2008) documents that restating firms that dismiss their CEO or change their auditor recover their reporting credibility faster than firms that do not make these changes. Despite these initial studies, Karpoff's (2012) review of the empirical literature on corporate reputation concludes that how firms repair damaged reputations remains one of the literature's important unanswered questions.

Our paper responds to Karpoff's (2012) call for research and contributes to the accounting literature in several additional ways. First, our study provides a methodological contribution by highlighting the value of investigating firms' specific remedial actions. While relatively few accounting papers examine specific actions, the approach is common in the management literature because it allows researchers to identify the series of complementary initiatives firms take in response to a shock in their product or financial markets (Miller and Chen 1994; Ferrier, Smith, and Grimm 1999; Roberts and Amit 2003).[3] Second, we identify several previously unexplored reputation-building actions directed toward capital providers, such as restructuring the firm, revamping the firm's internal control systems, and repurchasing shares. Third, our study is the first to evaluate post-restatement reputation repair with non-capital-provider stakeholders. Given that 51percent of post-restatement repair actions are targeted at these stakeholders, an investigation of these actions is a worthwhile endeavor. Finally, our findings regarding community-oriented actions contribute to the emerging literature that studies the causes and effects of corporate social responsibility (CSR) activities (Healy and Serafeim 2013; Martin and Moser 2013; Lys, Naughton, and Wang 2013).

II. INCENTIVES FOR REPUTATION REPAIR STRATEGIES TARGETING VARIOUS STAKEHOLDER GROUPS

In this section, we: (1) discuss how and why reputation affects a firm's valuation; (2) describe how a restatement damages a firm's reputation with each stakeholder group;[4] (3) develop two hypotheses regarding the frequency and types of reputation-building actions that managers undertake after a restatement; and (4) propose two additional hypotheses regarding the effectiveness of the reputation-building actions.

Reputation and Firm Value

Klein and Leffler (1981) present a stylized model linking reputation to firm value. They consider reputation capital in the specific context of multiple sellers in a competitive market, all of whom claim to sell a high-quality good. Firms that are able to make credible representations about fulfilling commitments related to the quality of their products are able to charge a premium in transacting with stakeholders. Stakeholders are willing to pay the premium because it increases their confidence in the quality of the firm's goods. The present value of the premium stream is an

[3] See Rajgopal, Venkatachalam, and Kotha (2002) for one example of an accounting paper that exploits specific firm actions.

[4] A firm has four, non-mutually exclusive primary stakeholder groups: (1) shareholders, creditors, and suppliers—collectively referred to as "capital providers"; (2) customers; (3) employees; and (4) the geographic communities in which it operates (Fombrun 1996; Jones 1995; Clarkson 1995). The "communities" group consists of "governments and communities that provide infrastructures and markets, whose laws and regulations must be obeyed, and to whom taxes and other obligations may be due" (Clarkson 1995).

intangible asset to the firm in the form of "reputation capital." A firm that has a record for honoring its commitment to supply a high-quality good will maintains this commitment as long as the present value of the premium stream exceeds the one-time gain from reneging on its commitment. Importantly, the reputation capital will lose value in the event the firm reneges and delivers a low-quality good. The destructible nature of reputation capital is what prevents low-type firms from similarly investing in advertising. In sum, Klein and Leffler (1981) argue that the value of the firm's reputation capital, and hence its market value, is increasing with its credibility in keeping its commitments about product quality.[5]

The model put forth by Klein and Leffler (1981) can be extended to other commitments between a firm and its various stakeholders. A firm's reputation with stakeholders is valuable because it reduces the uncertainty that stakeholders face in transacting with the firm (Weigelt and Camerer 1988). Such uncertainty stems from pervasive information asymmetry between the firm and its stakeholders, which could potentially be exploited by the firm at the expense of the stakeholder. Firms can take actions that mitigate stakeholders' concerns about the quality of the firms' commitments and the value of future exchanges with the firm. In turn, reduced uncertainty induces stakeholders to pay a premium in their transactions and to demand a lower premium in financing arrangements (Shapiro 1982, 1983; Klein and Leffler 1981; Karpoff 2011).

The Impact of a Restatement on Stakeholder Claims

This section discusses how and why the credibility of implicit and explicit commitments matters to each stakeholder group, and how each stakeholder group is affected by a restatement.

Explicit commitments are those detailed in a firm's written contracts, whereas implicit commitments are too complex to incorporate in written contracts at a reasonable cost. Both implicit and explicit commitments are valued by transaction partners, and both entail a risk of nonfulfillment. Stakeholders base their transaction terms on their expectations about management's ability and intent to fulfill its explicit and implicit commitments (Cornell and Shapiro 1987). Thus, the terms of trade with all stakeholder groups are directly impacted by a firm's reputation for integrity and competence in completing its exchanges (Zingales 2000).

A serious restatement constitutes a violation of a firm's explicit commitment to capital providers for providing materially accurate financial statements. Restatements have been linked to increases in the cost of financing (Hribar and Jenkins 2004; Kravet and Shevlin 2009), and an untrustworthy firm also incurs higher monitoring costs, bonding costs, and residual losses in its financing arrangements (Jensen and Meckling 1976). Finally, suppliers raise prices and offer less-generous payment terms if timely repayment and future purchase obligations are uncertain.

The impact of a restatement on other stakeholder groups is less direct and frequently takes one of three forms. First, because a serious restatement can be a precursor to bankruptcy, it can negatively affect a firm's ability to satisfy its existing commitments. Second, even if the possibility of bankruptcy is remote, the value of stakeholders' existing claims is reduced because the incremental risk and financial instability caused by the restatement can increase management's *ex post* incentive to renege on its commitments (Cornell and Shapiro 1987). Finally, stakeholders may view opportunistic misreporting as a signal of the firm's willingness to act opportunistically in other settings. Thus, a serious restatement both increases management's *ex post* likelihood of nonfulfillment, as well as damages management's *ex ante* reputation for competence and integrity.

[5] Investment in reputation capital need not be strictly symbolic. For instance, a firm might announce an investment in a new product-quality-assurance program that does help ensure product quality. The expenditure still builds reputation capital as long as it also causes customers to revise upward their expectations about product quality.

Survey evidence (Graham, Harvey, and Rajgopal 2005) and empirical data (Bowen, DuCharme, and Shores 1995) suggest that firms consider non-capital-provider stakeholders to be an important factor in determining their financial reporting policies. A more detailed discussion of the impact of the restatement on each stakeholder group follows.

The Impact of a Restatement On Customers

Customer purchase prices impound implicit claims about the qualities and attributes of a good, as well as the continuing availability of parts and service over the life of the product (Bowen et al. 1995). Companies that have a reputation for truthfully representing their products/services can charge a premium for their goods and benefit from lower customer search and monitoring costs (Jones 1995). Thus, after a serious restatement, skepticism about a firm's intent or ability to fulfill its commitments leads to a decline in customer demand.

The Impact of a Restatement on Employees

Work arrangements contain implicit claims about the nature of the firm and terms of employment. Through a self-selection process, employees work for firms that they believe share their ethics and values (Jones 1995). Employees also develop expectations about their working conditions, upward mobility, and long-term compensation based on implicit promises by management. After a serious restatement, a firm's reputation for honoring its commitments is likely to be damaged. Such a firm will experience attrition and reduced productivity in its existing workforce, attract and encourage employees who favor opportunistic behavior, and/or have difficulty attracting the highest quality workers (Jones 1995; Trevino, Weaver, and Reynolds 2006).

The Impact of a Restatement on Operating Communities

A firm makes implicit commitments to its geographic operating communities to be a responsible citizen and taxpayer. Firms that are able to develop a mutual relationship with powerful local constituents have a competitive advantage in implementing business plans and in countering threats in a crisis (Fombrun and Shanley 1990; O'Connor 2001). Conversely, firms with a reputation for opportunism generate ill will and damage their connections with local political leaders and constituents. For example, firms with a reputation for opportunism can have difficulty negotiating tax and other incentives for locating in new communities. As such, restating firms will lose the support of the local community if leaders doubt the firm's intention to be a long-term, productive resident.

Post-Restatement Reputation Repair Strategy

Many authors discuss how a restatement damages a firm's reputation for integrity and competence (Dechow et al. 1996; Karpoff et al. 2008a; Palmrose et al. 2004). Prior research argues that a firm has incentives to improve its post-restatement reputation with capital providers (Farber 2005; Gertsen, van Riel, and Berens 2006; Wilson 2008), and that a firm can take actions to mitigate stakeholder uncertainty about the firm's fulfillment of commitments. Thus, we predict that the frequency of reputation-building actions directed toward capital providers increases following a restatement.[6]

[6] Prior studies have found that firms take reputation-building actions directed toward capital providers after a restatement. Our contribution is to expand the set of specific reputation-building actions that we examine, as discussed further in Section III. Additionally, we build on prior literature by examining the immediate valuation effects of reputation-building actions directed toward capital providers in H3a.

H1a: Firms take reputation-building actions directed at capital providers following a serious restatement.

If a restatement results in unfavorably altered terms of trade with *all* of a firm's primary stakeholders, then reputation-related market losses will also incorporate the decrease in expected cash flows relating to a firm's customers, employees, and communities. Thus, we also argue that management has incentive to repair its reputation with non-capital-provider stakeholder groups after a serious restatement, resulting in an increase in the frequency of reputation-building actions directed toward customers, employees, and communities.

H1b: Firms take reputation-building actions directed at customers, employees, and communities following a serious restatement.

A logical question related to H1a and H1b is: Why does every firm not target every stakeholder group? The answer is that reputation-building actions consume cash and management time, both of which are at a premium during a rapidly unfolding public relations crisis such as a serious restatement. Moreover, the marginal benefit from targeting each stakeholder group varies across firms. H2 is based on our expectation that firms allocate constrained resources to stakeholders who are most critical to the firms' continued operation and that are most heavily influenced by the firms' reputation for competence and integrity. All public firms have incentives to take reputation-building actions directed toward capital providers. We expect that management's incentive to target its customers, employees, and/or communities is dependent on the nature of the firm and its products.

Nelson (1974) argues that customers derive more value from their seller's reputation for fulfilling long-term commitments for "experience goods," whose qualities cannot be determined prior to purchase, as opposed to "search goods," whose qualities can be easily evaluated prior to purchase. Customers may also be concerned about reputation when purchasing professional services, such as consulting or financial services, and products that benefit from a long-term relationship with the seller, such as automobiles or software systems (Bowen et al. 1995). Thus, we expect that sellers of such products target customers in their reputation repair strategies.

Turning to employees, the terms of trade between the firm and the employee are likely more affected by managers' reputation among firms with organized or highly specialized workers than for other firms. For instance, auto manufacturers face contentious negotiations with employee groups and benefit from a reputation for fulfilling their commitments. Additionally, as employee turnover, retraining, and disruption costs are large for firms with highly skilled engineers, such firms benefit more from maintaining their reputation and retaining employees. On the other hand, the terms of trade between the employee and the firm are likely less impacted by the firm's reputation among retail outlets with highly substitutable workforces. Thus, we expect that firms with organized or specialized workforces target employees in their reputation repair strategies.

By their very nature, companies that operate in many communities have a greater incentive to invest in community-targeted actions. For instance, retail chains operate in hundreds of locations and benefit from symbiotic relationships with operating communities, whereas community relations should be less important to a business-to-business firm that operates in one location. Thus, we expect that firms that operate in a large number of locations target communities in their reputation repair strategies.

H2: Managers' choice of targeting customers, employees, and/or operating communities is based on the extent to which the firm derives value from its reputation with each stakeholder group.

The Effectiveness of Post-Restatement Reputation-Building Actions

There is likely to be considerable variation in how firms respond to reputational damage. Consistent with Klein and Leffler's (1981) model, some firms will find it value-maximizing to

accept a lower reputation level and invest little in reputation repair (or even go out of business). Firms that intend to follow through with future commitments will likely invest in reputation repair actions to restore or even surpass their pre-restatement level of reputation. Other firms will undertake repair actions to arrive at a new equilibrium level of reputation capital somewhere below the pre-restatement level.

At the time of the restatement announcement, investors do not know how managers will respond in their reputation repair strategies. Uncertainty about how managers will respond to the crisis, and about the firm's new equilibrium level of reputation capital, likely persists for months or even years, especially if restatement-related litigation and investigations are still unsettled. The announcement of reputation-building actions after a restatement should gradually resolve this uncertainty and generate positive abnormal market returns as the firm's reputation capital is rebuilt.[7,8] To the contrary, if firms are in a "steady state" of reputation in the absence of a restatement, then we would not expect to observe consistently positive abnormal returns around reputation-building actions. Reputation-building actions in such a steady state would, on average, be taken to maintain the firm's current reputation capital level and are, hence, likely to be expected by investors. Further, some actions that are reputation-repairing *after* a restatement, such as firing the CEO or revamping internal controls, could have precisely the opposite effect *in the absence* of a restatement. That is, such actions could expose previously unknown weaknesses in the firm and therefore be viewed as reputation- and value-decreasing.

H3a (H3b): Announcements of reputation-building actions directed at capital providers (customers, employees, and communities) generate positive market returns after a serious restatement relative to similar actions taken in the absence of a restatement.

Wilson (2008) finds that firms experience a decline in earnings credibility after a restatement, and that firms that take reputation repair actions (including replacing the CEO) recover reporting credibility faster than other firms. Similarly, we predict that if reputation-building actions, directed at both the capital providers and other stakeholder groups, are successful at improving the firm's reputation, then such actions will be associated with improvements in the firm's financial reporting credibility.

H4: Reputation-building actions are associated with improvements in the perceived credibility of the firm's financial statements.

III. DATA AND EMPIRICAL SPECIFICATION

This section details the specific actions we expect firms to take in targeting each stakeholder group before discussing our sample selection and the results of our data-collection exercise. We refer the reader to Appendix A for examples of the reputation repair actions discussed below. Further detail on variable definitions is provided in Appendix B.

[7] At some point the uncertainty will be resolved and reputation-building actions will no longer generate positive returns. As our analysis spans just one year after the firm's restatement date, it is unlikely that uncertainty is fully resolved by the end of our sample period.

[8] Analogously, firms that do not invest in reputation repair should experience a gradual decline in value as uncertainty is resolved in the opposite direction. We do not put forth or test hypotheses about negative returns for firms that do not take reputation-repairing actions because there is no specific revelation date around which to assess short-window changes in firm value and because long-window returns tests will be confounded by other events.

Actions Targeting Capital Providers

Increasing Board Independence and Involvement

Prior studies have found lower incidence of restatements among firms with independent boards, low CEO entrenchment, and strong governance (Agrawal and Chadha 2005; Dechow et al. 1996; Farber 2005). Farber (2005) documents that firms committing financial reporting fraud benefit from subsequently increasing board independence. Following Farber (2005), we use a binary variable (*BOD*) to identify the days on which a firm announces an improvement in board independence or governance, for example by replacing an inside director with an outside director.

Change in CEO, CFO, or Other Key Leadership

Karpoff et al. (2008b) find that 92.4 percent of culpable executives lose their jobs after accounting misrepresentations. Wilson (2008) shows that firms with CEO turnover experience a faster recovery of financial reporting credibility after a restatement than firms that do not replace senior management. Thus, we use a binary variable (*ChngLeader*) to identify the days on which a firm announces turnover in the CEO or CFO position. We also include in *ChngLeader* the firing of other senior leadership, typically members of the restating entity's C-suite, that is explicitly attributed to the restatement.

Internal Controls, Incentive Systems, and Reporting Structure Changes

Dechow, Ge, and Schrand (2010) review the substantial literature on the relations between restatements and internal controls and manager compensation/incentives. After a restatement, firms likely implement changes to incentive or internal control systems both to reduce the likelihood of future restatements as well as to signal the firm's commitment to preventing misconduct (Gillespie and Dietz 2009; James and Wooten 2004; Gertsen et al. 2006). We use a binary variable (*IncntvCntrl*) to identify the days on which a firm announces a change to incentive or internal controls systems.

Restructuring or Refocusing

Fombrun and Shanley (1990) find that a company's operating diversity and reputation for financial transparency are inversely related. Their theory is that a highly diverse firm is more difficult to manage and provides greater opportunity to mask divisional performance in consolidated financial statements. As such, a firm is likely compelled to shed non-core business units or announce a reshaping of its goals and priorities after a significant restatement. We use a binary variable (*Reorg*) to identify the days on which the firm announces a new restructuring or strategic refocusing.

Stock Repurchases and Other Investor Actions

Firms are likely to initiate stock repurchases when they expect future operating performance to be better than what the capital market expects it to be (Lie 2005). Thus, when management believes that a firm's reputation is undervalued by capital markets, they may initiate a share repurchase to signal this undervaluation. We use a binary variable (*TStock*) to identify actions related to a new share repurchase announcement. Finally, we also code another binary variable (*OtherInvestor*) to identify the announcement of other reputation-building actions targeted toward investors that do not fall into one of our other five categories.

Actions Targeting Customers

We use a binary variable (*Customer*) to identify the days on which a firm announces an action designed to improve a firm's reputation as a stable trading partner and for providing quality goods

and services. While there is considerable research on improving reputation with customers following a product-related crisis (Dowdell, Govindaraj, and Jain 1992; Elsbach 1994; Blaney, Benoit, and Brazeal 2002; Rhee and Valdez 2009), there is little research on reputation repair with customers after a non-product-related trust-destroying event. Reputation-building actions include implementing a major new advertising campaign (Fombrun and Shanley 1990) or rebranding products in order to differentiate them from those offered during the trust-violating period (Gillespie and Dietz 2009). Another potential action is to pursue external validation of product quality via third-party awards or certifications.

To test H2, we identify firms that produce long-term products or services by considering their industry membership. Similar to Bowen et al. (1995), we define an indicator variable (*LTProduct*) for firms in any of these Fama-French 48 industries: 9, 11, 12, 13, 21, 22, 23, 24, 25, 32, 33, 34, 35, 36, 44, 45, 46, and 47.[9]

Actions Targeting Employees

We use a binary variable (*Employ*) to identify the days on which firms announce actions designed to improve a firm's reputation among current and potential employees. There is very little research on improving reputation with employees following a trust-destroying event. An example of such an action is providing ethics training or mentoring programs to help prevent employee turnover and to reinforce the firms' commitment to integrity (Gillespie and Dietz 2009). Other examples of employee-oriented actions include improving benefits programs and investing in winning "best employer" awards.

The binary variable *Labor* denotes firms that have organized or highly specialized workforces. We use two proxies to identify firms that fall into the *Labor* category. Following Bowen et al. (1995), our first proxy is whether the firm has a defined benefit pension plan, identified as those with non-zero values for Compustat variables PBPRO, PBPRU, or PBARR. Because defined benefit pension plans are more prevalent among unionized firms, *Labor* should capture firms with organized work forces. Further, defined pension benefit plans are used to improve employee retention, so the presence of a plan likely also captures firms with specialized workforces for which turnover is especially costly (Ippolito 1987). We also identify firms with specialized workforces as those in the top decile of sales per employee (calculated by year across all available Compustat firms). The underlying assumption is that employees who generate more revenue are likely more skilled, have more outside job opportunities, and are more expensive to replace.

Actions Targeting Communities

We define a community-oriented reputation-building action as the announcement of resource-consuming actions that either relate to environmental sustainability or explicitly involve a non-profit organization (Fombrun and Shanley 1990; Gillespie and Dietz 2009; O'Connor 2001; Weber Shandwick 2007). We use a binary variable (*Community*) to identify the days on which the firm makes such an announcement. To test H2, we identify firms that likely operate in multiple communities as those that deal in consumer products and services, agriculture, or natural resource extraction. We proxy for these firms with a binary variable *Retail* that is equal to 1 for firms in the

[9] These codes correspond with the following industries: consumer goods, healthcare, medical equipment, pharmaceutical products, machinery, electrical equipment, automobiles and trucks, aircraft, shipbuilding and railroad equipment, communication, personal services, business services, computers, electronic equipment, banking, insurance, real estate, and trading. Not all of these industries are represented in our sample.

following Fama-French 48 industries: 1, 2, 3, 7, 9, 11, 13, 18, 23, 27, 28, 29, 30, 32, 33, 34, 35, 41, 42, 43, 44, 45, and 46.[10]

Sample Selection and Data Collection

We draw our sample from the U.S. GAO's database of 2,705 restatements over the period of January 1997 through July 2006. Panel A of Table 1 details our sample refinement. We limit our sample to the 697 restatements that Hennes et al. (2008) identify as involving irregularities. Sixty-three firms lack required data. In order to focus on economically significant firms with sufficient resources to undertake a meaningful reputation-recovery plan, we drop 367 firms with less than $1 billion in total assets prior to the restatement announcement. We eliminate 21 observations consisting of firms with more than three consecutive restatements with less than one year between each. Finally, we exclude restatements by Freddie Mac and Fannie Mae because these are quasi-governmental entities and likely have atypical reputation-building incentives. The resulting sample consists of 243 individual restatements. Restatements that occur within one year of a previous restatement by the same firm are aggregated and considered to be a single restatement observation, leading to a final sample of 188 restatements. Given the high cost of acquiring hand-collected data, we randomly select half of this sample (94 firms) for our analysis.[11]

We obtain all press releases issued by the 94 restating firms during the "post-restatement period," which starts the first day of the month preceding the restatement date and ends with the earlier of the end of the month one year after the firm's last restatement date or the date the firm delists from CRSP. We begin our data collection the month prior to the formal restatement date because some firms take pre-emptive repair actions shortly prior to the public revelation of the restatement. We extract press releases from Factiva, active company websites, and archived websites found at http://www.archive.org.[12]

We next code those press releases that announce one of the reputation-building actions discussed above. To control for confounding events, we also code press releases that include the initial news of an accounting irregularity (*Initial*), that occur on the same day as an accounting release with positive or negative earnings news (*EarnRelease_Pos* and *EarnRelease_Neg*, respectively), and "other" press releases that contain new restatement-related information without a specific repair action (*Other*). We also count the number of relevant words in each press release

[10] We require that all sample firms have a minimum of $1 billion in assets, which reduces the concern that sample firms within these industry membership codes include small firms with few operating locations. These codes correspond with the following industries: agriculture, food products, candy and soda, entertainment, consumer goods, healthcare, pharmaceutical products, construction, automobiles and trucks, precious metals, mining, coal petroleum and natural gas, communications, personal services, business services, computers, wholesale, retail, restaurants and hotels, banking, insurance, real estate. Not all of these industries are represented in our sample.

[11] Untabulated summary statistics confirm that the sample is randomly picked from the larger set of 188 firms. In addition, our sample of firms experience average abnormal negative returns of −11.9 percent around the restatement announcement, indicating that the restatements have serious capital market consequences.

[12] It is possible that a firm may undertake reputation-building actions without announcing them in a press release, meaning that these actions are not identified in our sample. However, for actions directed toward capital providers, customers, and communities, this concern is mitigated because unannounced actions are unlikely to be part of a firm's *public* reputation repair campaign. For employees, however, a firm may communicate strictly internally so as not to reveal proprietary information to external parties. Excluding unannounced actions understates the frequencies of actions in both the post-restatement period and for the control groups discussed below.

TABLE 1

Sample Selection

Panel A: Primary Sample Selection

U.S. GAO restatements population: January 1997–July 2006	2,705
Less: restatements without "irregularities" (Hennes et al. 2008)	(2,008)
Less: firms without CRSP/Compustat data	(63)
Less: firms without $1b in assets prior to restatement	(367)
Less: firms with more than three restatements (relating to four firms)	(21)
Less: Fannie Mae and Freddie Mac	(3)
Remaining population of individual restatements	243
Consolidate firms with multiple successive restatements	(55)
Population of Discrete Restatements	188
Randomly Selected Sample (50 percent of each year, rounded)	94
Matched Control Firms	94

The population of restatements available for analysis is sourced from the GAO and limited to only "irregular" restatements as identified by Hennes et al. (2008). Restatements for firms without $1 billion in total assets as of the year-end prior to the restatement are eliminated. Fannie Mac and Freddie Mac are eliminated, as are firms with more than three consecutive restatements with less than one year between each. Restatements happening within one year of a previous restatement by the same firm are aggregated and considered part of a single restatement.

Panel B: Pre-Restatement Period Samples

	Restating Firms	Matched Control Firms
Total Firms	94	94
Less: firms that are not independent public companies in the control period	(2)	(5)
Less: firms with limited or no press release data available	(10)	(10)
Less: firms with a restatement during the control period	(2)	—
Sub-Sample Available for Control Period Data Collection	80	79

Where available, we also collected press release data for a pre-restatement control period for both the restating firms and matched control firms. We were unable to collect control period data for the complete sample.

(*Words*), exclusive of boilerplate language and financial statements, to control for the level of detail provided in the press release.[13] All other press releases are discarded.[14]

Because we cannot observe the managers' true intent for undertaking the reputation-building action, we cannot directly control for what motivated the action. Instead, we use control groups and

[13] The last few paragraphs of a firm's press release typically include static text describing the company, which we treat as "boilerplate" and exclude.

[14] The determination of whether a press release contains a "codeable" action is usually not difficult. For example, firms typically issue a short press release each quarter that simply states the date and time of their upcoming earnings release conference call. These press releases are discarded as they do meet any of the criteria described above.

difference-in-differences analysis to control for actions that are likely to have been taken even in the absence of a restatement.

Control Groups

We repeat our data-collection process for a one-year same-firm control period ending one year prior to the restatement date (i.e., days −731 through −366), referred to as the "pre-restatement" period. The objective in collecting pre-restatement control period data is to obtain a baseline for the frequency and effects of reputation-building actions taken in the absence of a restatement. We use a lagged control period because trigger events that initially reveal potential accounting misconduct, such as whistle-blower actions or an auditor resignation, are sometimes announced prior to the public revelation of an actual restatement.[15] As detailed in Panel B of Table 1, we are unable to collect pre-restatement data for 14 of the 94 restating firms.[16]

Finally, we repeat the entire data-collection exercise for a set of matched control firms. The objective in comparing the restating firms to matched control firms is to reduce concerns that the restating firms' post-restatement actions are actually motivated by recent downturns in performance or market value that are common among restatement firms. Our control-matching process is detailed in Appendix C. Each control firm is assigned an artificial "restatement date" that coincides with the matched restating firm's actual restatement date, providing parallel "pre-restatement" and "post-restatement" periods for the matched firms. We collect post-restatement data for all 94 matched control firms. As detailed in Panel B of Table 1, "pre-restatement" data are available for 79 of the 94 matched control firms. The control period press releases are coded in largely the same way as press releases from the post-restatement period.[17]

Descriptive Statistics of Reputation-Building Actions

Panel A of Table 2 presents summary information on the announcements identified during the restating firms' post-restatement periods. Of the total 1,785 announcements, 898 pertain to reputation-building actions. Of those actions, 459 (51 percent) are aimed at non-capital providers, including 189 actions targeted at customers, 54 actions targeted at employees, and 216 actions targeted at geographic communities. The median number of actions during the post-restatement period is 6 per firm, and total actions per firm ranges from 0 to 55. This indicates considerable heterogeneity in firms' reputation repair strategies.

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[15] Among our sample, the average number of days between the end of the end of the firm's accounting violation period (i.e., the end of the period in which the restatement took place) and the restatement date is 411 days. As our pre-restatement control period spans days −731 through −366, this period overlaps with the violation period for many of our sample firms. We are not aware of any previous literature that would indicate whether restatement firms take more or fewer reputation-building actions during the violation period. It therefore is not clear what bias, if any, is introduced by having overlapping violation and control periods. Further, our use of matched control firms (discussed further below) reduces concerns about any potential bias introduced by overlapping violation and control periods in our within-firm analysis.

[16] Untabulated sensitivity analysis excluding these 14 firms from both the pre- and post-restatement periods produces results that are qualitatively unchanged from those using the full sample. Herein, we define "qualitatively unchanged" to be results where the coefficients of interest have the same signs as the tabulated results and also have the same significance (i.e., classification as significant or insignificant) based on a $p < 0.10$ level of confidence.

[17] One exception relates to our coding criteria for *ChngLeader*, which includes turnover in the CEO/CFO positions as well as any turnover in senior management positions that is explicitly attributed to the restatement. This latter criterion is irrelevant during the control periods because there is no restatement to reference. All results are robust to eliminating the 20 percent of *ChngLeader* observations that involve turnover in positions other than the CEO or CFO.

TABLE 2

Press Release Summary Information

Panel A: Announcements by the Restating Firms during the Post-Restatement Period (94 Firms)

	Total Announcements	Mean Per Firm	Min. Per Firm	Median Per Firm	Max. Per Firm
BOD	66	0.70	0	0	4
ChngLeader	109	1.16	0	1	4
IncntvCntrl	102	1.09	0	1	6
TStock	24	0.26	0	0	4
OtherInvestor	21	0.22	0	0	3
Reorg	117	1.24	0	1	8
All_CP_Actions	439	4.67	0	4	18
Customer	189	2.01	0	1	22
Employ	54	0.57	0	0	10
Community	216	2.30	0	1	14
All_NonCP_Actions	459	4.88	0	2	44
Total Actions	898	9.55	0	6	55
Initial	80	0.85	0	1	1
Other	611	6.50	1	5	20
EarnRelease (*Pos* and *Neg*)	196	2.09	0	2	8
Total Announcements	1,785	18.99	1	14	84

Panel B: Announcements for the Control Groups

Type of Announcement	Restating Firms Pre-Restatement (80 Firms)	Control Firms Post-Restatement (94 Firms)	Control Firms Pre-Restatement (79 Firms)
BOD	10	21	19
ChngLeader	29	33	18
IncntvCntrl	1	0	0
TStock	19	25	22
OtherInvestor	6	15	14
Reorg	33	30	24
All_CP_Actions	98	124	97
Customer	84	98	66
Employ	13	9	16
Community	126	79	57
All_NonCP_Actions	223	186	139
Total Actions	321	310	236
EarnRelease (*Pos and Neg*)	14	20	18
Total Announcements	335	330	254

This table provides summary information on the reputation-building actions identified from firm press releases. All variables are as described in Appendix B.

Table 2, Panel B shows that we identify a total of 321 reputation-building actions during the restating firms' pre-restatement control periods. Whereas 49 percent of the restatement period actions were directed toward capital providers in Panel A, just 31 percent of the pre-restatement period actions are directed toward capital providers in Panel B. Panel B also shows a total of 310 reputation-building actions for the matched control firms during the post-restatement period and 236 actions for the matched control firms' pre-restatement periods, with roughly 40 percent of the control firm actions directed toward capital providers.

IV. EMPIRICAL TESTS AND RESULTS

Analysis of Hypothesis 1

Consistent with H1a and H1b, we expect to observe an increase in the frequency of reputation-building actions by the restating firms in the post-restatement period relative to the pre-restatement period, as well as more reputation-building actions by restatement firms than by control firms. We also expect a subsequent decrease in reputation-building actions over the several quarters following the restatement.

Figure 1 and Panel A of Table 3 show the average number of reputation-building actions taken by the restating and control firms. As the number of days per quarter is not uniform across firms, especially in cases where a restating firm delists during a quarter, the total number of actions taken by each firm each quarter is scaled by the fraction of that quarter for which data were collected. The restating firms take an average of 0.31 (0.70) actions per quarter directed toward capital providers (other stakeholders) in the pre-restatement period, which increase to 2.20 (1.44) actions directed toward capital providers (other stakeholders) during the first quarter of the post-restatement period, and they remain consistently higher during subsequent quarters. At the same time, the control firms take an average of 0.31 (0.44) actions per quarter directed toward capital providers (other stakeholders) in the pre-restatement period, and 0.28 (0.43) actions in the post-restatement period. Panel B presents within-firm differences in actions taken by the restating firms in the post- versus pre-restatement periods. Panel C presents matched-pair differences in actions taken by the restating versus control firms in the post-restatement periods. All differences are statistically significant.

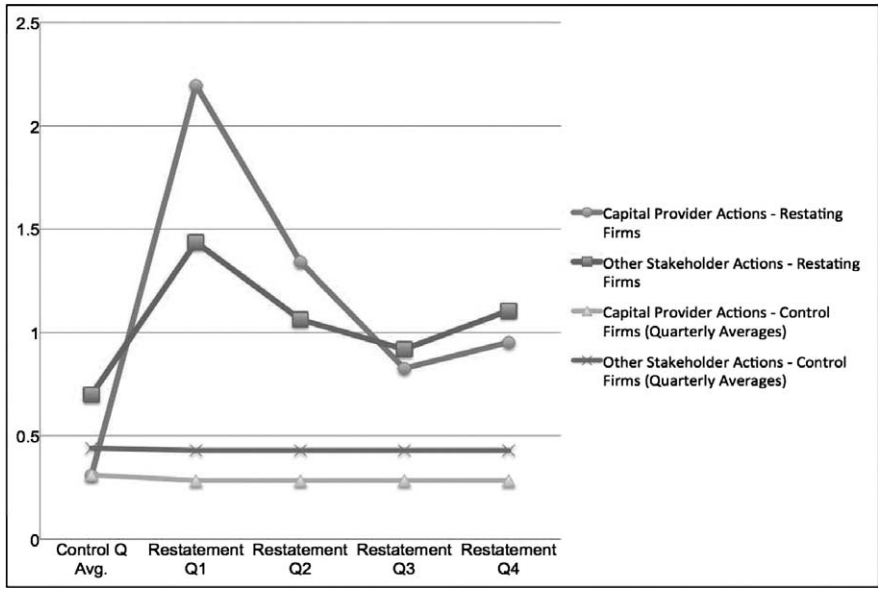
Table 3, Panel D presents the difference-in-differences analysis, calculated as the firm-specific pre-/post-restatement difference in actions for each restating firm against the difference for its matched control firm. As the difference-in-differences requires that both the restating and control firms have pre-restatement data, the sample is reduced to 66 matched pairs. Finally, Panel E presents the average within-firm differences between the number of actions taken by the restating firms in the first quarter of the post-restatement period minus the number of actions in each of the second through fourth post-restatement quarters. Again, all differences in Panels D and E are at least marginally significant at the $p < 0.10$ level or better.

In sum, the sharp increase in the frequency of reputation-building actions after a restatement relative to both the pre-restatement period and contemporaneous control firms, followed by a decline in the frequency of actions over the subsequent four quarters, is consistent with these reputation-building actions being motivated by the restatement. Thus, the data are consistent with the predictions in H1a and H1b.

Analysis of Hypothesis 2

H2 predicts that among customers, employees, and communities, firms target their reputation-building actions at the stakeholders for whom reputation matters most. Table 4 presents data on average number of annualized repair actions taken by the restating firms during the post-restatement period for sub-samples based on the nature of the firms and their products. The univariate results in

FIGURE 1
Graphical Presentation of the Frequency and Timing Results in Table 3



This figure presents the average number of reputation-building actions taken by restating and control firms in the pre- and post-restatement periods. The data underlying this figure are provided in Table 3. The total number of actions taken by each firm in each period is scaled by the fraction of the quarter for which data were collected. For the restating firms in the post-restatement period, the figure presents the average number of actions taken in each individual quarter. For the restating firms in the pre-restatement period as well as control firms in both periods, the figure presents the simple average number of actions taken across all quarters in each period. The points denoted with a circle represent all actions taken by restating firms directed toward capital providers (i.e., *All_CP_Actions*), while the points denoted with a square represent all actions taken by restating firms directed toward customers, employees, and communities (i.e., *All_NonCP_Actions*). The points denoted with a triangle and with an "X" represent the average number of capital provider and other stakeholder actions (i.e., *All_NonCP_Actions*) taken by the matched control firms, respectively.

Table 4 are consistent with H2 for all predictions. Firms that produce long-term products or services take significantly more customer-focused actions than other firms (2.18 versus 0.80, respectively). Firms with organized or highly specialized workforces take more employee-focused actions than other firms (0.62 versus 0.06, respectively). Firms operating in multiple locations take more community-focused actions than other firms (2.17 versus 1.29, respectively).

Table 5 presents a logistic regression version of the analysis in Table 4. The dependent variable in each column (*RRAHigh*) is an indicator variable equal to 1 for restating firms in the top quartile of the frequency of actions directed toward customers, employees, or communities. The independent variables in columns (1) through (3) are the corresponding proxies for the extent to which the firm derives benefit from its implicit claims with each stakeholder group (*LTProduct, Labor,* and *Retail*). Columns (4) through (6) expand the regressions to include several control variables, including an indicator variable, *All_CP_High,* that is set to 1 for firms that fall in the top 25 percent of capital provider actions. We also include controls for firm size, book-to-market, leverage, and abnormal returns for 30 days around the restatement date.

TABLE 3

Frequency and Timing of Reputation-Building Actions

Panel A: Reputation-Building Actions in the Control versus Post-Restatement Quarters (max firms = 94)

	(1) Restating Firm Pre-Restatement Avg. per Qtr.	(2) Restating Firm Post-Restatement				(3) Control Firm Pre-Restatement Avg. per Qtr.	(4) Control Firm Post-Restatement Avg. per Qtr.
		Q1	Q2	Q3	Q4		
All_CP_Actions	0.31	2.20	1.34	0.83	0.95	0.31	0.28
All_NonCP_Actions	0.70	1.44	1.06	0.92	1.11	0.44	0.43

Panel B: Difference between Post-Restatement and Pre-Restatement Actions for Restating Firms (max firms = 80)

Avg. Difference Between	Q1 − Ctrl Q	Q2 − Ctrl Q	Q3 − Ctrl Q	Q4 − Ctrl Q
All_CP_Actions	1.75***	1.01***	0.46***	0.72**
All_NonCP_Actions	0.76***	0.44**	0.33**	0.36**

Panel C: Differences between Post-Restatement Actions for Restating Firms and Post-Restatement Actions for Matched Control Firms (max firms = 94)

Avg. Difference Between	Q1 − Ctrl Q	Q2 − Ctrl Q	Q3 − Ctrl Q	Q4 − Ctrl Q
All_CP_Actions	1.91***	1.05***	0.53***	0.66**
All_NonCP_Actions	1.01***	0.62***	0.47**	0.65***

Panel D: Difference-in-Differences (max firms = 66)

Avg. Difference Between	Q1 − Ctrl Q	Q2 − Ctrl Q	Q3 − Ctrl Q	Q4 − Ctrl Q
All_CP_Actions	1.87***	1.02***	0.47***	0.90**
All_NonCP_Actions	0.59***	0.47**	0.30*	0.27*

Panel E: Difference between Post-Restatement Q1 versus Q2, Q3, and Q4 for Restating Firms (max firms = 94)

Avg. Difference Between	Q1 − Q2	Q1 − Q3	Q1 − Q4
All_CP_Actions	0.84***	1.37***	1.26***
All_NonCP_Actions	0.42**	0.61***	0.38**

*, **, *** Indicate significant differences at $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively, based on one-tailed tests as directional predictions are provided.

Panel A presents the average number of reputation-building actions taken by: (1) restating firms during the pre-restatement period; (2) restating firms during each quarter in the post-restatement period; (3) matched control firms during the pre-restatement period; and (4) matched control firms during the post-restatement period. For the aforementioned groups (1), (3), and (4), Panel A presents the average number of actions across all quarters. For group (2), Panel A presents the average number of actions within each post-restatement quarter. The total number of actions taken by each firm in each quarter is scaled by the fraction of the quarter for which data were collected. Panel B presents within-firm differences in the number of actions taken by restating firms in the post- versus pre-restatement periods. Panel C presents matched-firm differences in the number of actions taken by restating firms in the post-restatement period and matched control firms in the post-restatement period. Panel D presents firm-specific difference-in-differences between the restating firms' pre-/post-restatement change in actions less the matched control firms' pre-/post-restatement change in actions. Panel E presents differences between the restating firms' actions in Q1 of the post-restatement period and actions in Q2, Q3, and Q4 of the post-restatement period.

TABLE 4

Action Frequency Cross-Sectional Test

Type of Announcement	Number of Firms	Annualized Mean # Announcements Per Firm	Difference p-value
Customer: All Firms	94		
LTProduct = 0	36	0.80	
LTProduct = 1	58	2.18	
Difference in means: *Pr* > *t* =		1.38	0.004***
Employ: All Firms	94		
Labor = 0	30	0.06	
Labor = 1	64	0.62	
Difference in means: *Pr* > *t* =		0.56	< 0.001***
Community: All Firms	94		
Retail = 0	28	1.29	
Retail = 1	66	2.17	
Difference in means: *Pr* > *t* =		0.88	0.083*

*, *** Indicate significance at p < 0.10 and p < 0.01, respectively, based on one-tailed t-tests as directional predictions are provided.
This table's analysis assesses whether the frequency of each type of non-capital provider reputation-building actions taken by the restating firm in the post-restatement period is predictable based on the nature of the firm and its business. The total number of reputation-building announcements per firm is annualized.
Variable and firm type definitions are in Appendix B.

All results in Table 5 are consistent with H2. Firms that sell long-term products take more customer-oriented repair actions (*LTProduct* in columns (1) and (4)), firms with organized or specialized workers take more employee-oriented actions (*Labor* in columns (2) and (5)), and firms operating in multiple locations take more community-oriented actions (*Retail* in columns (3) and (6)).

Analysis of Hypothesis 3

H3a and H3b predict that reputation-building actions directed toward capital providers and other stakeholders in the post-restatement period are value-increasing. We measure the value impact of the reputation-building actions based on two-day (0, 1) abnormal returns surrounding each type of reputation building action (*CAR*). Our test approach is to estimate a difference-in-differences regression to measure the *CAR* for the restating firms in the periods before and after the restatement against the matched control firms. Each observation is one firm-day in the following model:

$$CAR = \alpha_1 + \alpha_2 Post + \alpha_3 Restate + \alpha_4 Restate{*}Post + \Sigma\beta_1 Variables + \Sigma\beta_2 Variables{*}Post + \Sigma\beta_3 Variables{*}Restate + \Sigma\beta_4 Variables{*}Restate{*}Post + \Sigma\beta_k Year + \varepsilon, \quad (1)$$

where *Variables* = {*BOD, ChngLeader, IncntvCntrl, Reorg, TStock, OtherInvestor, Customer, Employ, Community, Other, Initial, EarnRelease_Pos, EarnRelease_Neg,* and *Words*}.

TABLE 5

Logit Regressions Predicting High Frequency of Non-CP Actions Taken by Restating Firms in the Post-Restatement Period

$$RRAHigh = \alpha_1 + \beta_1 LTProduct + \beta_2 Labor + \beta_3 Retail + \beta_4 All\_CP\_High + \beta_5 LN\_AT + \beta_6 BTM + \beta_7 Leverage + \beta_8 Restatement\_CAR + \varepsilon.$$

	H	(1) Customer	(2) Employee	(3) Community	(4) Customer	(5) Employee	(6) Community
LTProduct	(+)	1.105			1.534		
		[1.94]**			[2.62]***		
Labor	(+)		1.992			1.628	
			[3.13]***			[2.08]**	
Retail	(+)			1.030			1.382
				[1.48]*			[1.94]**
All_CP_High					2.129	0.493	1.327
					[2.57]***	[0.73]	[2.05]**
LN_AT					0.011	0.463	1.044
					[0.07]	[2.31]**	[2.51]***
BTM					−0.068	−0.061	−0.207
					[−0.15]	[−0.16]	[−0.52]
Leverage					−0.110	0.045	0.036
					[−1.73]**	[0.35]	[0.59]
Restatement CAR					3.137	1.153	4.042
					[1.65]**	[0.97]	[3.13]***
Constant		−1.825	−2.639	−1.792	−2.349	−6.543	−11.396
		[−3.70]***	[−4.22]***	[−2.98]***	[−1.42]*	[−3.18]***	[−2.92]***
Pseudo R^2		0.041	0.091	0.031	0.181	0.176	0.349
n		94	94	94	94	94	94

*, **, *** Indicate significance at $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively, based on one-tailed tests where directional predictions are provided.

The dependent variables are binaries equal to 1 if the firm is in the top 25 percent of annualized number of each type of reputation repair action taken by restating firms in the post-restatement period. Financial statement variables are as of the year-end preceding the restatement announcement. Standard errors are heteroscedasticity-robust and clustered by year. H indicates the predicted coefficient sign. Z-statistics are in brackets.

See Appendix B for variable definitions.

Post is a binary variable for the post-restatement period. *Restate* is a binary variable that identifies restating firms from the matched control firm. *BOD* through *Community* are binary variables equal to 1 if that category of reputation-building action took place that day. *Other* is a binary variable equal to 1 for announcements that discuss the restatement but do not include a reputation repair action. We also use the indicator variable *Initial* to control for actions announced concurrently with initial restatement announcements, and the indicator variables *EarnRelease_Pos* and *EarnRelease_Neg* to control for the concurrent release of earnings information. *Words* controls for the level of detail using the number of relevant words included in the press release, in hundreds. We interact each of these variables, collectively *Variables*, with *Restate, Post,* and *Restate* ∗ *Post* to complete the difference-in-differences regression design. *Year* is year fixed effects based on the press release date. H3 predicts that the β_4 coefficients are positive.

Table 6 presents the results of estimating model (1).[18] For simplicity, we present the coefficient sums that provide point estimates of the *CAR* around each action in the pre- and post-restatement periods for each group of firms. For brevity, we do not report results for the control variables, intercepts, and year fixed effects. The first column represents the returns to reputation-building action by the restating firms in the post-restatement period. Of the six actions directed toward capital providers, five are associated with positive stock price reactions that are statistically significant at the $p < 0.05$ level, one-tailed: *BOD, IncntvCntrl, Reorg*, *TStock*, and *OtherInvestor,* with average valuation effects of 2.8 percent, 2.6 percent, 1.8 percent, 3.1 percent, and 3.8 percent, respectively. We also find that actions directed at customers, employees, and communities are associated with positive and statistically significant stock price reactions, with returns of 1.8 percent, 1.9 percent, and 2.1 percent, respectively. Of the untabulated control variables, only *Initial* is statistically significant, with a negative 6.2 percent return.

Column (2) represents the returns to corresponding actions by the restating firms in the pre-restatement period. Most coefficients in column (2) are insignificantly different from zero (based on two-tailed tests), indicating that there are no abnormal returns to most reputation-building actions in the pre-restatement period. However, *ChngLeader, IncntvCntrl, Reorg,* and *Employ* have significantly negative estimated coefficients, although the *IncntvCntrl* result is based on a single observation and should be interpreted with caution. Broadly speaking, these negative coefficients are consistent with an unanticipated announcement of a corrective action from a seemingly healthy firm potentially exposing unknown weaknesses about that firm.

Column (3) represents the difference in returns to actions taken by the restating firms between the pre- and post-restatement periods. All differences are positive, and all but *OtherInvestor* are significant at the $p < 0.05$ level. Further, the returns to *ChngLeader* are significantly higher after a restatement than before, despite the insignificant coefficient in column (1).

Column (4) represents the returns to actions taken by the matched control firms in the post-restatement period. The returns to *ChngLeader, Reorg, TStock, Customer,* and *Employ* are negative and at least marginally significant. These results are consistent with these types of actions being viewed as value-decreasing in the absence of a scandal. Column (5) represents the returns to actions by control firms in the pre-restatement period, none of which are statistically significant. Column (7) presents the difference-in-differences coefficients, all of which are positive and statistically significant. Thus, the results in Table 6 are consistent with reputation-building actions taken by the restating firms in the post-restatement period being value-increasing, relative to the control groups.

Analysis of Hypothesis 4

Finally, we turn to evidence related to H4: Do these reputation repair actions improve the restating firm's reporting credibility? To investigate this question, we evaluate the impact of repair actions taken by the restating firm on the earnings response coefficient (ERC) measured over three days around eight subsequent earnings announcements after the restatement, relative to a ten-quarter control period ending one year prior to the restatement announcement.[19] In a Bayesian updating model, the belief revision that occurs upon a signal change is a function of the weight placed on the changing signal relative to the rest of the information set. Holthausen and Verrecchia (1988) present a model to show that belief revision, and therefore price reaction, around an earnings

[18] Table 6 reflects fewer announcements than Table 2 because the unit of observation in Table 6 is one firm-day, so multiple announcements on the same day are counted as a single observation, and because several observations are dropped due to lack of returns data.

[19] As before, we exclude from the control period the year immediately preceding the restatement announcement because accounting irregularities are often announced prior to the actual restatement date.

TABLE 6

Regressions of Two-Day Returns to Reputation Repair Action Announcements

$$CAR = \alpha_1 + \alpha_2 Post + \alpha_3 Restate + \alpha_4 Restate{*}Post + \Sigma\beta_1 Variables + \Sigma\beta_2 Variables{*}Post + \Sigma\beta_3 Variables{*}Restate + \Sigma\beta_4 Variables{*}Restate{*}Post + \Sigma\beta_k Year + \varepsilon.$$

$$Variables = \{BOD,\ ChngLeader,\ IncntvCntrl,\ Reorg,\ TStock,\ OtherInvestor,\ Customer,\ Employ,\ Community,\ Other,\ Initial,\ EarnRelease\_Pos,\ EarnRelease\_Neg,\ Words\}.$$

	Coefficient Sums: Restating Firms						Coefficient Sums: Matched Control Firms						
	H	(1) Post	H	(2) Pre	H	(3) Diff	H	(4) Post	H	(5) Pre	H	(6) Diff	H	(7) Diff-in-Diffs
		$(\beta_1 + \beta_2 + \beta_3 + \beta_4)$		$(\beta_1 + \beta_3)$		$(\beta_2 + \beta_4)$		$(\beta_1 + \beta_2)$		(β_1)		(β_2)		(β_4)
BOD	(+)	0.028	?	−0.009	(+)	0.037	?	−0.016	?	0.004	?	−0.020	(+)	0.057
		[2.66]***		[−0.55]		[1.87]**		[−1.63]		[0.30]		[−1.23]		[2.21]**
ChngLeader	(+)	0.009	?	−0.028	(+)	0.037	?	−0.024	?	−0.002	?	−0.022	(+)	0.059
		[0.71]		[−1.99]**		[1.95]**		[−1.74]*		[−0.16]		[−1.12]		[2.16]**
IncntvCntrl	(+)	0.026	?	−0.041	(+)	0.067	?	no obs.	?	no obs.	?	no obs.	(+)	0.067
		[3.25]***		[−3.66]***		[4.92]***								[4.92]***
Reorg	(+)	0.018	?	−0.035	(+)	0.053	?	−0.022	?	0.007	?	−0.029	(+)	0.082
		[1.73]**		[−1.78]*		[2.39]***		[−1.66]*		[0.59]		[−1.61]		[2.85]***
TStock	(+)	0.031	?	−0.001	(+)	0.032	?	−0.014	?	0.017	?	−0.031	(+)	0.063
		[3.24]***		[−0.03]		[2.03]**		[−1.79]*		[1.27]		[−1.98]**		[2.81]***
OtherInvestor	(+)	0.038	?	0.004	(+)	0.034	?	−0.01	?	0.015	?	−0.025	(+)	0.059
		[1.73]**		[0.23]		[1.27]		[−0.75]		[0.89]		[−1.17]		[1.72]**
Customer	(+)	0.018	?	−0.006	(+)	0.024	?	−0.031	?	0.007	?	−0.038	(+)	0.062
		[2.17]**		[−0.52]		[1.65]**		[−2.55]**		[0.66]		[−2.36]**		[2.85]***
Employ	(+)	0.019	?	−0.029	(+)	0.048	?	−0.027	?	0.010	?	−0.037	(+)	0.085
		[2.00]**		[−2.45]**		[3.12]***		[−1.95]*		[0.78]		[−2.00]**		[3.48]***
Community	(+)	0.021	?	−0.014	(+)	0.035	?	−0.019	?	0.006	?	−0.025	(+)	0.060
		[2.35]***		[−1.27]		[2.41]**		[−1.62]		[0.57]		[−1.62]		[2.80]***
Observations		2,166												
Adjusted R^2		0.053												

(continued on next page)

TABLE 6 (continued)

*, **, *** Indicate significance at $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively, using White standard errors and based on one-tailed tests where directional predictions are provided.

The dependent variable is two-day abnormal returns around the announcement of each reputation repair action (days 0, +1). Each observation relates to a single firm-day. *Post* is a binary variable for the post-restatement period. *Restate* is a binary variable that identifies restating firms. The variables *BOD* through *Community* are binary variables that are equal to 1 on days for which a new reputation-building action is announced. Coefficient sums are presented in the table. H indicates the predicted coefficient sign. t-statistics are in brackets. *Other, Initial, EarnRelease_Pos, EarnRelease_Neg, Words,* intercepts, and year fixed effect coefficient estimates are omitted for brevity.

Variables are as described in more detail in Appendix B.

announcement is a function of the expected quality of the accounting data. After controlling for other factors known to affect ERCs, firms whose earnings numbers are seen as more credible by the stock market are likely to be associated with higher ERCs.

Our empirical model, described in greater detail below, closely follows Wilson (2008). The objective is to investigate whether ERCs are higher after the restatement relative to before for restating firms that take more reputation repair actions, as compared to restating firms that take fewer of such actions. We estimate the following regression:

$$\begin{aligned} CAR = {} & \alpha_1 + \alpha_2 Post + \alpha_3 RRAHigh + \alpha_4 RRAHigh{*}Post + \beta_1 UE + \beta_2 Post{*}UE \\ & + \beta_3 RRAHigh{*}UE + \beta_4 RRAHigh{*}Post{*}UE + \Sigma\beta_k Controls + \Sigma\beta_k Controls{*}UE \\ & + \Sigma\beta_k Qtr + \varepsilon. \end{aligned} \tag{2}$$

CAR is the firm's three-day abnormal return surrounding the firm's quarterly earnings announcement. *CAR* is truncated at 1 percent and 99 percent due to the presence of extreme returns that are likely driven by omitted variables (the truncated *CAR* variables have a minimum absolute value of 24 percent). *Post* is an indicator variable set to 1 if the earnings announcement is in the post-restatement period. A restating firm must have complete data for at least one pre-restatement quarter and one post-restatement quarter in order to be included in the sample. *Controls* are variables that closely follow Wilson (2008) and deHaan, Hodge, and Shevlin (2013), and are listed in the notes in Table 7 and detailed in Appendix B.

UE is unexpected earnings scaled by stock price as of the end of the quarter. The indicator variable *RRAHigh* takes on one of three specifications: *All_CP_High* (*All_NonCP_High*) is set to 1 for restating firms that fall in the top 25 percent of capital provider (non-capital provider) actions, while *CP&NonCP_High* is set to 1 for restating firms in the top 25 percent of both capital provider and non-capital provider actions. Data requirements reduce our sample to 77 usable firms and 1,244 firm-quarter observations. A parsimonious test of H4 suggests a positive and significant β_4 coefficient.[20]

Results of estimating Equation (2) are reported in Table 7. For brevity, only the ERC-related β_1 through β_4 coefficients are tabulated. The upper portion of Table 7 presents the regression estimates, while the bottom portion presents the coefficient linear combinations that represent the conditional average ERCs for each group of firms in each period.

The primary coefficient of interest, the difference-in-differences estimator β_4, is positive and statistically significant at the $p < 0.05$ level in each of the three columns in Table 7 (one-tailed as directional predictions are provided). This evidence is consistent with H4, that restating firms that take a greater number of repair actions directed at both capital providers and other stakeholders enjoy greater increases in ERC (and therefore reporting credibility) after the restatement relative to: (1) the period before the restatement, and (2) restating firms that undertake fewer repair actions.

Although the estimates of β_1, β_2, and β_3 are not critical to our hypothesis testing, they do support the validity of our models and provide qualitative detail about the patterns of ERCs before and after restatements. The β_1 coefficient is statistically significant and ranges from 4.420 to 5.756 in the three columns. The β_3 coefficient is not statistically significant in any of the three columns, which indicates no significant difference in reporting credibility between low- and high-action firms

[20] The intuition behind model (2) is as follows. The coefficient β_1 (sum of coefficients β_1 and β_2) represents pre-restatement ERC (post-restatement ERC) for low-action firms. Therefore, β_2 represents the change in ERC after the restatement relative to before for low-action firms. The sum of coefficients β_1 and β_3 (sum of the four coefficients β_1, β_2, β_3, and β_4) represents the pre-restatement ERC (post-restatement ERC) for high-action firms. Therefore, the coefficient β_3 represents the pre-restatement difference in ERCs between high-action and low-action firms. β_4 is the difference-in-differences estimator and represents the improvement in ERC in the post-restatement period relative to the pre-restatement period for high-action firms relative to low-action firms.

TABLE 7

Earnings Response Coefficients Analysis

$$CAR = \alpha_1 + \alpha_2 Post + \alpha_3 RRAHigh + \alpha_4 RRAHigh{*}Post + \beta_1 UE + \beta_2 Post{*}UE + \beta_3 RRAHigh{*}UE + \beta_4 RRAHigh{*}Post{*}UE + \Sigma\beta_k Controls + \Sigma\beta_k Controls{*}UE + \Sigma\beta_k Qtr + \varepsilon.$$

		H	(1) *All_CP_High*	(2) *All_NonCP_High*	(3) *CP&NonCP_High*
UE	β_1		4.420	5.756	5.292
			[3.15]***	[4.09]***	[3.82]***
*Post * UE*	β_2		−1.073	−0.921	−0.747
			[−2.09]**	[−1.79]*	[−1.48]
*RRAHigh * UE*	β_3		−1.330	0.506	−0.407
			[−1.11]	[0.36]	[−0.20]
*RRAHigh * Post * UE*	β_4	(+)	3.053	3.894	5.546
			[2.31]**	[1.91]**	[2.16]**
Observations			1,244	1,244	1,244
Adjusted R^2			0.062	0.069	0.065
Coefficient Linear Combinations					
ERC: Pre-Period, Control Firms	β_1	(+)	4.420	5.756	5.292
			[3.15]***	[4.09]***	[3.82]***
ERC: Post-Period, Control Firms	$\beta_1 + \beta_2$	(+)	3.347	4.836	4.545
			[2.46]***	[3.60]***	[3.44]***
ERC: Pre-Period, High RRA Firms	$\beta_1 + \beta_3$	(+)	3.091	6.262	4.885
			[1.68]**	[2.95]***	[1.83]**
ERC: Post-Period, High RRA Firms	$\beta_1 + \beta_2 + \beta_3 + \beta_4$	(+)	5.071	9.235	9.684
			[3.54]***	[4.40]***	[4.46]***
Net Change in ERC Pre/Post for High RRA Firms	$\beta_2 + \beta_4$	?	1.980	2.973	4.799
			[1.60]	[1.52]	[1.91]*

*, **, *** Indicate significance at $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively, based on one-tailed tests where directional predictions are provided.

Only restating firms are included in the analysis below. *CAR* is three-day abnormal returns around quarterly earnings announcements. Included controls are *Persistence, Nonlinear, MTB, Size, Loss,* and *Beta*. *Qtr* are calendar quarter fixed effects. *RRAHigh* is an indicator variable equal to 1 is for firms in the top quartile of reputation repair actions. Three specifications of *RRAHigh* are included: *All_CP_High* in model 1, *All_NonCP_High* in model 2, and *CP&NonCP_High* in model 3. The baseline (i.e., pre-restatement) period is the ten-quarter period ending one year prior to the restatement announcement. The "Post" period is quarters +1 through +8 following the restatement announcement. A firm must have complete data for at least one pre-restatement and one post-restatement quarter to be included in this analysis. *CAR* is truncated at 1 percent and 99 percent. All continuous variables are winsorized at 1 percent and 99 percent. The restricted sample includes 77 firms and 1,244 firm-quarter observations. H indicates the predicted coefficient sign. t-statistics based on White standard errors are in brackets. Control and intercept shift coefficients are untabulated for brevity.

prior to the restatement. The coefficient β_2 is negative and significant in two out of three columns, indicating that low-action firms experience a decline in ERCs after the restatement. Finally, $(\beta_2 + \beta_4)$ represents the pre-/post-restatement change in ERCs for the high-action firms. The last row of Table 7 shows that $(\beta_2 + \beta_4)$ is positive and marginally significant in just one of three specifications, which is consistent with the idea that high-action firms are able to maintain an ERC as high as the one before the restatement.

V. SUMMARY AND CONCLUSIONS

We believe that this is the first study of its kind to examine a comprehensive set of reputation repair actions taken by firms after a serious restatement, targeting not only capital providers, but also other stakeholder groups. We find that restating firms undertake substantially more reputation-building actions after a serious restatement than before the restatement, as well as relative to matched control firms. We also find that firms that sell durable products take repair actions targeting customers, firms that have organized or highly specialized workforces take actions targeting employees, and that firms operating in a large number of communities take actions targeting the geographic communities in which they operate. We find positive abnormal returns surrounding the announcements of reputation-building actions by restating firms in the post-restatement period, whereas similar actions in the absence of a restatement generate zero or negative abnormal returns. Finally, repair actions directed at both capital providers and other stakeholders are associated with improvements in the earnings response coefficients of restating firms after the restatement, which we interpret as being consistent with reputation repair actions improving reporting credibility.

This study expands the limited archival accounting research that has examined the market value implications of repair actions directed toward capital providers. Prior work has examined the impact of post-restatement CEO turnover and changes to board composition on the firm. Instead, we consider a portfolio of repair actions, targeted at both capital providers and other stakeholders who hold implicit claims against the firm. The emphasis on specific remedial actions, as opposed to focusing only on particular governance changes, adds substantially to a better understanding of how firms respond to a financial reporting crisis.

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APPENDIX A

Examples of Select Reputation Repair Actions taken by Restating Firms

BOD = includes actions that increased Board of Director independence or involvement, or that are explicitly designed to improve corporate governance.

- **Career Education Corporation** implemented a number of measures to strengthen Board oversight following its restatement: (1) appointed several new independent directors, (2) implemented minimum stock ownership guidelines, (3) established new requirements that Board members must obtain permission to serve on other boards, (4) required continuing education for Board members, (5) shortened members' tenures, (6) increased the number of votes required for a new Board member, (7) allowed shareholders to call for special meetings via two-thirds vote, and (8) eliminated anti-takeover provisions.
- **Oriental Financial Group** implemented new software to allow off-site Board members access to "board archives, articles of interest, conference schedules, and all other board and committee materials." The firm described this as an effort to improve communication with directors and to facilitate timely approvals between meetings (Oriental Financial Group 2006).
- Many firms appointed accounting expert Board members in the months following their restatements. Several of these appointments were high-profile individuals from major accounting firms. For instance **Boston Scientific Corporation** added the former Chairman and CEO of Ernst & Young to its Board of Directors.

IncntvCntrl = changes to incentive or internal control systems designed to prevent or detect future irregularities.

- **Adecco** appointed a "full-time Chief Compliance and Business Ethics Officer" who reports directly to the Board (Adecco 2004). A number of other firms established similar roles.
- After a restatement related to loan loss reserves, **SunTrust Banks** announced extensive "remediation plans to address internal control deficiencies associated with the allowance framework." This included new trainings, reporting structures, approval processes, technology, and other control activities. Additionally, the firm stated that "senior management will adopt a different tone with respect to their [internal] communications regarding the application of GAAP to the determination of the allowance for loan losses" (SunTrust Banks 2004).
- Less than three months after announcing their restatement, **The PNC Financial Services Group** announced that they added the position of Chief Risk Officer to "help PNC sharpen its strategic focus and integrated coordination of all risk management activities corporate wide" (PNC Financial Services 2002a). Three months later they added another position, the Chief Regulatory Officer, to be "responsible for the management of all issues related to regulatory affairs and compliance" (PNC Financial Services 2002b). One month later they "adopted a new Statement of Principles and a strengthened Code of Conduct setting high standards of corporate ethical responsibilities for all employees" (PNC Financial Services 2002c). (The latter press release was also coded "*Employee*.")

Reorg = announcements of a restructuring or strategic refocusing.

- Shortly after its restatement, **ConAgra Corporation** announced "changes to its corporate and business operating structures to realign and clarify accountability" (ConAgra Corporation 2005).

- **Stone Energy Corporation** announced a "strategic plan to re-focus on its Gulf of Mexico shelf exploration properties." The CEO commented on this major divestiture of the firm's other operations as follows: "After fifteen months in which Stone has endured significant external and internal distractions, the Board has elected to focus a majority of its capital on Stone's Gulf of Mexico exploitation projects as its near term strategy" (Stone Energy Corporation 2006).

OtherInvst = other actions that are intended to improve investor confidence.

- The majority of these actions are special, one-time dividends. Otherwise, "*OtherInvst*" actions are idiosyncratic.
- **Hanover Compressor** announced a special ten-day waiver of the Company's policy prohibiting officers and directors from buying the Company's shares in the open market. The chairman of the Board noted: "The board acted at the request of senior management and in the joint belief that Hanover's common stock is substantially undervalued" (Hanover Compressor 2002).
- **Cendant Corporation** hired an accounting expert to fill a newly created Vice President of Investor Relations position. It also announced plans to hire additional staff to assist the Vice President in liaising with the investment community (Cendant Corporation 1998).

Customer = actions designed to improve the firm's reputation as a stable trading partner and for providing quality goods and services.

- In addition to a worldwide rebranding, **Flowserve Corporation** offered a new ten-year warranty on its products as a way of "demonstrating our ongoing partnership with our customers" (Flowserve 2004). **Cummins Inc.** and other firms made similar warranty extensions.
- Several months after their restatement announcement, **Offshore Logistics** rebranded itself as Bristow Group Inc. "as a way of outwardly expressing the internal changes we have been making over the past year" (Offshore Logistics Inc. 2006).
- **Lucent Technologies, Inc.** is an equipment manufacturing business, an R&D-intensive industry where product development is important. They issued a number of press releases in our sample period touting their products as winning various industry awards. Lucent also announced a decision to take back $452 million of previously sold products "in the interest of preserving customer and distributor relationships" (Lucent Technologies 2000).

Employee = actions designed to improve the firm's reputation among current and potential employees.

- **Stone Energy Corporation** announced a new number of new employee policies designed to "institute and cultivate a culture of compliance to ensure that the [factors leading to the restatement] do not recur" (Stone Energy Corporation 2005).
- A number of companies issued press releases announcing high rankings in various employee surveys. After their restatements, **Bristol-Myers Squibb** issued four press releases touting their rankings relating to women in the workforce, and **Qwest Communications** issued two press releases touting their ranking as one of the top companies for Hispanic employees.

Community = corporate social responsibility actions that explicitly involve a nonprofit organization or relate to environment sustainability campaigns. The action can have no immediate, obvious monetary benefit to the firm.

- **Rite Aid** announced ten separate charitable programs in the months after its restatement, including donating money for cancer research, hospital funding, and pharmacy degree programs.
- Two days after announcing material internal control weaknesses, **Chiron Corporation** distributed a press release detailing their contributions to a grant program supporting community math and science programs. This started a systematic pattern whereby one *Community* press release was released two, four, eight, and 13 weeks subsequent to the restatement press release. There were no *Community* press releases in the five weeks prior to the restatement press release, and no more such press releases for five months after the last one in the pattern described above.

APPENDIX B

Variable Definitions

Variable	Description
Proxies Relating to Capital Providers ("*CP*")	
BOD	Binary variable for each day on which a new board of directors governance improvement is announced. The individual actions are aggregated into a count variable for summary statistics and tests of action frequency.
ChngLeader	Count variable for each day on which turnover of the CEO or CFO is announced, or for the dismissal of other senior leadership that explicitly attributed to the restatement. The individual actions are aggregated into a count variable for summary statistics and tests of action frequency.
IncntvCntrl	Count variable for each day on which a new and significant change to incentive or control systems is announced. The individual actions are aggregated into a count variable for summary statistics and tests of action frequency.
Reorg	Count variable for each day on which a new restructuring or strategic refocusing is announced. The individual actions are aggregated into a count variable for summary statistics and tests of action frequency.
TStock	Count variable for each day on which a new share repurchase program is announced. The individual actions are aggregated into a count variable for summary statistics and tests of action frequency.
OtherInvestor	Count variable for each day on which other types of actions intended to improve reputation among investors are announced. e.g., one-time special dividends. The individual actions are aggregated into a count variable for summary statistics and tests of action frequency.
All_CP_Actions	Count variable for each day on which any capital provider reputation-building action is announced (i.e. *BOD*, *ChngLeader, IncntvCntrl, Reorg, TStock,* and *OtherInvestor*). The individual actions are aggregated into a count variable for summary statistics and tests of action frequency.
Proxies Relating to Other Stakeholders ("*NonCP*")	
Customer	Count variable for each day on which a new customer-focused reputation-building action is announced. The individual actions are aggregated into a count variable for summary statistics and tests of action frequency.

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APPENDIX B (continued)

Variable	Description
Employ	Count variable for each day on which a new employee-focused reputation-building action is announced. The individual actions are aggregated into a count variable for summary statistics and tests of action frequency.
Community	Count variable for each day on which a new community-focused reputation-building action is announced. The individual actions are aggregated into a count variable for summary statistics and tests of action frequency.
All_NonCP_Actions	Count variable for each day on which a non-capital provider reputation-building action is announced (i.e., *Customer, Employ,* and *Community*). The individual actions are aggregated into a count variable for summary statistics and tests of action frequency.
Cross-Section Firm Types	
LTProduct	Firms falling into Fama-French industry codes: 9, 11, 12, 13, 21, 22, 23, 24, 25, 32, 33, 34, 35, 36, 44, 45, 46, and 47.
Labor	Includes: (1) Firms with defined pension plans—identified as those with non-zero values for Compustat variables PBPRO, PBPRU, and PBARR; and (2) firms in the top decile of revenues per employee (Compustat SALE/EMP) calculated by year for all available firms on Compustat.
Retail	Firms falling into the following Fama-French industry codes: 1, 2, 3, 7, 9, 11, 13, 18, 23, 27, 28, 29, 30, 32, 33, 34, 35, 41, 42, 43, 44, 45, and 46.
All_CP_High	Binary variable for firms in the top 25 percent of annualized number of *All_CP_Actions*.
All_NonCP_High	Binary variable for firms in the top 25 percent of annualized number of *All_NonCP_Actions*.
CP&NonCP_High	Interaction of *All_CP_High* and *All_NonCP_High*; i.e., firms in the top 25 percent of both annualized *CP* and *NonCP* actions.
Control Variables	
Beta	Market model beta using value-weighted returns, calculated over the year ending two days prior to each earnings announcement.
BTM	Book value per share (Compustat SEQ/CSHO) over price per share (PRCC_F).
CAR	Cumulative abnormal returns are calculated as the buy-and-hold return on firm *i* common stock over *t* days, less the market return for the same period. For the ERC analysis, *CAR* is calculated over three days surrounding the quarterly earnings announcement. For the analysis of returns to reputation-building actions, *CAR* is calculated over two days (days 0, 1) so as to reduce overlapping return windows.
EarnRelease_Pos	Binary variable if a reputation repair action is announced concurrently with new earnings information that is higher than the same period one year prior (based on Compustat EPSPXQ).
EarnRelease_Neg	Binary variable if a reputation repair action is announced concurrently with new earnings information that is lower than the same period one year prior (based on Compustat EPSPXQ).

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Variable	Description
Initial	Binary variable for the first time accounting irregularities are announced.
Leverage	Total debt (DLC + DLTT) divided by total shareholders' equity (SEQ).
LN_AT	Natural log of total assets (Compustat AT)
Loss	Indicator variable for actual EPS per I/B/E/S less than $0.00.
MTB	Market value of equity divided by stockholders' equity (Compustat CSHO × PRCC/SEQ).
Nonlinear	Earnings surprise multiplied by the absolute value of earnings surprise.
Other	Binary variable equal to 1 for press releases containing information directly related to the restatement but not related to a specific reputation repair action.
Persistence	Autoregressive coefficient of quarterly earnings regressed on the prior year's quarterly earnings, calculated over a two-year period prior to the earnings announcement.
Qtr	Quarter fixed effects.
Restatement_CAR	Cumulative abnormal returns over the 30 days surrounding the restatement announcement (days −28 through +1).
ROA	Net income (NI) divided by average total assets.
Size	Natural log of market value of equity.
UE	Unexpected earnings, based on actual EPS and the most recent analyst consensus, scaled by price at the end of the quarter. Actual EPS and consensus are as per I/B/E/S. In cases where I/B/E/S data are unavailable, we use reported income before extraordinary items and calculated unexpected earnings based on a seasonal random walk.
Total Assets	Compustat variable AT.
Words	The number of press release words (in 00s) relating to the restatement or reputation repair action—boilerplate text is excluded.
Year	Restatement year fixed effects.
Variables Used in Matching Control Firms	
Accruals	Accruals as per Richardson, Sloan, Soliman, and Tuna (2005). Accruals = (ΔWC + ΔNCO + ΔFIN)/AT_AVG. Δ = one-year change. WC = (ACT − CHE) − (LCT − DLC). NCO = (AT − ACT − IVAO) − (LT − LCT − DLTT). FIN = (IVST + IVAO) − (DLTT + DLC + PSTK). AT_AVG = average AT.
Accruals Change	One-year change in accruals.
BTM	Consistent with earlier definition. Compustat SEQ/(PRCC_F * CSHO).
BTM Change	One-year change in BTM.
CAR_FY	Buy-and-hold return less the market return over the fiscal year.
Core_ROA	Core earnings (Compustat OIADP)/average total assets (Compustat AT).
Core_ROA_Change	One-year change in Core ROA.
Financing Need Binary	Consistent with Dechow et al. (2011). Binary variable equal to 1 if [(CFO − past three year average capital expenditures)/current assets] < −0.5. CFO = OANCF. Capital expenditures = CAPX. Current assets = ACT.

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APPENDIX B (continued)

Variable	Description
Financing Need Binary Change	One-year change in *Financing Need Binary*.
Financing Raised	Total stock and debt issuance, scaled by assets. Compustat (SSTK + DLTIS)/AT.
Financing Raised Change	One-year change in *Financing Raised*.
Leverage	Consistent with the earlier definition. Total debt (DLC + DLTT) divided by total shareholders' equity (SEQ).
Leverage Change	One-year change in leverage.
Market Cap–Year-End	Compustat PRCC_F * CSHO.
CAR_PreRestate	Buy-and-hold return less the market return over the 182 days ending one day after the restating firm's restatement date.
Market Cap–Day (t+1)	Market value of equity as of one day after the restating firm's restatement date.

All data for reputation repair actions as well as the control variables *Initial, EarnRelease, Other,* and *Words* are manually coded based on press releases obtained from Factiva and company websites. Accounting data are from Compustat, returns data are from CRSP, analyst forecasts are from I/B/E/S. Data on reputation-building actions are hand-collected from company press releases. Continuous variables are winsorized at 1 percent and 99 percent.

APPENDIX C
Identifying Matched Control Firms

Our population of control firms consists of all firms that do not have a restatement reported in the GAO's restatements database. Recall that our population of restating firms is limited to the subset of GAO restatements that involve "irregularities," per Hennes et al. (2008). Thus, firms with a GAO-reported restatement that is *not* due to an irregularity are ineligible for both the control and main samples. As the process to identify "irregularities" is likely imperfect, we make this design choice to reduce the possibility of erroneously including an "irregularity" firm in our control sample. All variables discussed below are specified in Appendix B.

Because we predict that a firm's reputation repair strategy is significantly determined by the extent to which it derives values from its reputation with customers, employees, and/or operating communities, we require that eligible control firms have the same *LTProduct*, *Employ*, and *Retail* designations as the restating firm. Untabulated results show that firm size is also a significant determinant of action frequency. We ensure the control and restating firms are of similar size by requiring that eligible control firms are in the same market capitalization quintile as the restating firm, measured as of the end of the day following the restating firm's restatement.

A predominant finding from prior literature is that restating firms experience a decline in market value around the revelation of accounting irregularities. Further, Wu (2002) finds evidence of negative abnormal returns starting at least six months before the restatement date. Thus, our next matching criterion is that the control firm experienced a similar change in market value over the six months ending one day after the restating firm's restatement (*CAR_PreRestate*). We also ensure that control firms have similar profitability as the restating firms by matching based on core earnings scaled by total assets (*Core_ROA*), measured as of the first fiscal year-end following the restatement date. We accomplish these criteria by sorting the eligible control firms into deciles of *CAR_PreRestate* and *Core_ROA* and matching accordingly.

Within the remaining eligible control firms, we use a propensity score logit model to identify the firm that most closely resembles the restating firm.[21] We draw from Kinney and McDaniel (1989), Beneish (1999b), Richardson, Tuna, and Wu (2002), and Dechow, Ge, Larson, and Sloan (2011) to identify explanatory variables. Common findings of these papers are that violation firms tend to have greater capital market pressures (as measured by higher leverage and/or recent capital raised), higher market-to-book ratios, larger accruals, and stronger recent growth. Thus, our propensity score model includes the following variables: book-to-market (*BTM*) and one-year change in book-to-market, *Core_ROA* and one-year change, leverage and its one-year change, the annual amount of financing raised and its one-year change, a binary variable for *ex ante* financing need and its one-year change, accruals and its one-year change, market capitalization, fiscal year abnormal market returns (*CAR_FY*), and industry and year fixed effects. The aforementioned variables are all measured as of the year-end immediately *following* the restating firm's restatement, with the one-year changes spanning the pre- to post-restatement year-ends. We measure these variables as of the year-end after the restatement because the objective of our matching exercise is to find control firms with similar incentives to undertake reputation-building actions, and those incentives manifest after the accounting irregularities have been revealed.[22] However, as we include one-year changes in our variables, the pre-restatement values are implicitly also considered in our analysis (i.e., the post-restatement value less the one-year change is a linear combination of the pre-restatement values).[23] The propensity model sample includes 506 "irregularity" observations, per Hennes et al.'s (2008) dataset, and 55,966 eligible controls without a restatement. Untabulated results show that the logit model has a pseudo R^2 of roughly 13 percent and that the coefficient estimates are largely consistent with prior work.

The matching criteria are implemented as in the order previously described, with the addition that control firms must have press release data for at least six months to be retained in the analysis. Of the first-best control matches, 12 are eliminated for a lack of press release data. The second-best match is used for each of these firms. Untabulated analysis compares the means of the propensity model variables between the control and restating firms. Only one of 14 covariates, *Leverage,* is significantly different between the groups ($p = 0.08$). Thus, the data indicate that our control sample firms closely resemble the restating firms.

[21] We do not perform a single-stage match based strictly on propensity scores because doing so results in significant dissimilarities between the restating and control firms. For instance, using single-stage propensity matching results in restating firms that are, on average, over three times larger than the matched control firms. Further, the control firms frequently do not have the same *LTProduct, Labor,* and *Retail* characteristics as the restating firms.

[22] Note that abnormal returns and market value of equity used in the propensity score model are measured consistently for each firm's fiscal year. This is necessary as the propensity model involves a single pooled regression. In the first stage of the matching process we are able to measure returns and market value as of one day after each restating firm's restatement date, which allows for the closest possible match between the restatement and control firms.

[23] The propensity model includes *CAR_FY*, which is abnormal return for the fiscal year ending after the restatement announcement date. However, important information about the restatement may not be fully revealed until the amended financial statements are actually filed with the SEC. Of our sample firms, 25 file amended financial statements after the end of the *CAR_FY* window, meaning that the full impact of the restatement may not be captured in our matching process for these firms. Untabulated tests show that three-day "filing window" abnormal returns for these 25 firms are insignificantly different from zero. Further, the Pearson (Spearman) correlation between *CAR_FY* as used in the propensity model and *CAR_FY* plus the filing window returns is 0.995 (0.992). Thus, there is no indication that the CARs used in the propensity model are systematically biased by excluding filing window returns.