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Abstract

We predict that when a restatement is disclosed, information on the lower monitoring quality of the directors at the restating firms ("tainted directors") can transfer to other firms these directors also serve on ("contagion firms"), and that this information transfer causes investors to reassess the credibility of the contagion firms' financial reporting. Consistent with our predictions, we find that restatements at the restating firms also induce negative stock price reactions at the contagion firms. The stock price reactions are more negative if the contagion firms have lower financial reporting quality or if the tainted directors serve on the audit committees of the contagion firms. Overall, our results are consistent with a contagion effect of restatements through common directorships.

I. INTRODUCTION

In this study, we examine whether restatements that adversely affect shareholder wealth at restating firms induce negative stock price reactions among firms that have directors who sit on the board of the restating firms. We term this phenomenon as contagion effect of restatements through common directorships. For brevity, throughout this paper, we refer to the directors of the restating firms as 'tainted directors,' and the other firms in which the tainted directors also serve on the board as 'contagion firms.' We also examine whether the contagion effect of restatements through common directorships varies with the financial reporting quality and the tainted directors' responsibility for financial reporting at the contagion firms.

Our study is motivated by three streams of literature. The first stream examines the stock price movements of firms that announce a restatement and finds negative abnormal returns over a short announcement window (e.g., Palmrose et al. 2004). The second stream examines the consequences of information transfer of restatements and finds evidence of declines in the stock prices of the restating firms' industry peers around the restatement events (Gleason et al. 2008). The third stream examines the monitoring role of the board and/or audit committee members and finds that investors infer a firm's financial reporting quality from the quality of its directors (DeFond et al. 2005; Farber 2005).

Based on the above literature, we argue that restatements at a firm can cause investors to perceive the directors of the restating firms as having low quality in monitoring the financial reporting of the restating firms. If investors perceive this information to be useful in updating their expectations of the monitoring quality of these directors in other firms which they also serve on, we expect information transfer on the monitoring quality of these directors to occur. To the extent that investors alter their perceptions of the financial statements issued by the contagion

firms, the stock prices of the contagion firms should move in a direction consistent with that of the restating firms. Further, the contagion effect should be more severe for contagion firms with lower financial reporting quality because investors are more likely to have concerns over the financial reporting of these firms. In addition, given that audit committee members bear greater responsibility in ensuring the financial reporting quality of a firm (Srinivasan 2005), the contagion effect should be more severe if the tainted directors serve on the audit committees of the contagion firms.

We identify our sample of contagion firms based on the names of the directors who sit on the board of firms that announced restatements during the 1997-2006 period. Because we want to explore the contagion effect of restatements that investors perceive to be negative events, we restrict our sample to contagion firms in which the corresponding restating firms have negative three-day abnormal returns surrounding the restatement event. To distinguish our results from contagion effect of restatements on industry peers, we further restrict our sample to contagion firms that are not in the same industry as the corresponding restating firms. We then examine the stock price reactions experienced by the contagion firms over a three-day announcement window surrounding the restatement event of the corresponding restating firm.

Consistent with our expectations, we find that the contagion firms experience a statistically significant mean size-adjusted abnormal return of -0.21 percent over the three-day announcement window surrounding the restatement event. The mean abnormal return is more pronounced for contagion firms with lower financial reporting quality. Specifically, the mean abnormal return is -0.68 percent (-0.62 percent) for contagion firms in the highest quintile of total accruals (discretionary accruals), and -1.56 percent for contagion firms that recorded a small positive earning (i.e., firms having a return on assets between 0 and 0.01). In addition, the

mean abnormal return is -0.55 percent if the tainted director is an audit committee member of the contagion firm. These mean abnormal returns are all statistically significant. In the multivariate analyses, we find that the abnormal returns are lower if the contagion firm has (1) higher total accruals, (2) higher discretionary accruals, or (3) small positive earnings, or if the tainted director is an audit committee member of the contagion firm.

Overall, our results are consistent with the notion that investors scrutinize the quality of financial reporting and the directors' monitoring at the contagion firms due to the information transfer effect of restatements, and that investors react more negatively if the financial reporting quality is lower and if the tainted director has greater responsibility in monitoring the financial reporting of the contagion firm. These results provide evidence of a contagion effect of restatements through common directorships.

Our study makes the following contributions. First, prior studies that examine information transfer effect on share prices focus on intra-industry information transfers. For instance, Han and Wild (1990) examine the stock price reactions of industry peers subsequent to a firm's earnings announcement and Gleason et al. (2008) examine a similar issue pertaining to a restatement event. To the best of our knowledge, our study is the first to examine the information transfer effect on share prices through common directorships. We show that investors perceive a lower quality of monitoring at the contagion firms and penalize these firms even though restatements are made by the corresponding restating firms and not by these firms.

Second, we contribute to the literature on the monitoring role of audit committee members and board directors in ensuring the quality of financial reporting. DeFond et al. (2005) find that the market reacts positively to the appointment of audit committee members with accounting financial expertise. Farber (2005) finds that the market reacts positively to firms that

improve their governance structures subsequent to a fraud event. Our study shows that investors pay attention to the quality of directors and penalize firms which have directors perceived to have low monitoring quality due to their associations with restatements at other firms.

Finally, this study enhances our understanding of the external labor market's disciplining of directors for monitoring failure. Srinivasan (2005) finds that audit committee members and outside directors lose outside directorships subsequent to a restatement event. Our study provides one explanation why the external labor market might punish directors associated with monitoring failure. That is, investors perceive the tainted directors to be of low monitoring quality and this perception intensifies the pressure on the contagion firms to remove the tainted directors. Our findings also suggest that not only does the external labor market punish directors if they are associated with a monitoring failure, investors also can infer the lower monitoring quality of these directors and punish the firms in which they serve as directors.

In Section II, we discuss related studies and develop our hypotheses. Section III describes the research design. Section IV describes the sample selection procedures and descriptive statistics. Section V discusses the empirical results, and Section VI concludes the paper.

II. RELATED STUDIES AND HYPOTHESIS DEVELOPMENT

Restatements and the Monitoring Role of Directors and Audit Committee

Restatements are an acknowledgement that prior financial statements were not in accordance with generally accepted accounting principles (GAAP) (Palmrose and Scholz 2004). They also indicate a breakdown in a firm's internal control system (Kinney and McDaniel 1989). Restatements can be identified by the company, the SEC, an independent auditor or a combination thereof, and misstatements are identified through internal audits and other internal

control procedures, such as period-end closing processes, policy reviews, and mechanisms that solicit and investigate complaints from employees.[1] Once identified, restatements are disclosed in several ways, such as in press releases, Form 8-K (Current Events) filings with the SEC, and by the filing of amended financials (10-Ks).

The U.S. Securities and Exchange Commission (SEC) lists financial restatements as a major factor in undermining investor confidence in financial reporting and market efficiency (SEC 2002). According to the reports by the General Accounting Office (GAO), accounting restatements increased 145 percent and cost investors $100 billion during 1997–2002, and restatements further increased from 2002 to 2005 (GAO 2002, 2006). The GAO reports also conclude that not only do restatement announcements appear to affect company stock prices, but these announcements and the questions they raise about certain corporate accounting practices may also negatively impact overall investor confidence.

Besides the GAO reports, research studies have also documented that restatements have a material adverse effect on firm valuation. Palmrose et al. (2004) report an average abnormal return of -9.2 percent to restatement announcements over a two-day window that begins with the announcement date. Other studies, such as Dechow et al. (1996), Turner et al. (2001), and Wu (2002), also provide consistent evidence of a negative market response to restatements. In addition, Wu (2002) reports that earnings response coefficients decline following restatements, likely indicating a loss of confidence in the company's earnings quality. Finally, Hribar and Jenkins (2004) show that firms' cost of capital increases following a restatement announcement. Clearly, restatements have a negative impact on investors' perception of the financial reporting quality of a firm.

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[1] For instance, when auditors discover that previously issued financial statements contain material omissions or misstatements, the Generally Accepted Auditing Standards require that they advise the client to make appropriate disclosures, and to take the necessary steps to ensure this occurs (AICPA, 2002, Section AU 561).

Restatements could in part be due to poor corporate governance structure. For instance, the extant research has shown an association between the effectiveness of the board and/or audit committee and the reliability of a firm's financial reporting. Dechow et al. (1996) and Beasley (1996) report a greater percentage of insiders on the boards of SEC enforcement action companies. Klein (2002) shows that the independence of the audit committee is negatively associated with the level of earnings management. Further, Farber (2005) finds that audit committees of fraud firms meet less frequently than control firms.

Given the role of the board in monitoring financial reporting as mentioned earlier, it is not surprising that accounting restatements reflect a lower quality in the monitoring role of the directors. Consistent with this notion, Srinivasan (2005) shows that the labor market imposes penalties on outside directors for financial reporting failures. Specifically, the author finds unusually high turnover of outside directors in firms experiencing a restatement, and that audit committee members are more likely to leave the restatement firms because they have greater responsibility for financial reporting oversight. Hence, it appears that the restating firm infers the lower monitoring quality of its directors and removes these directors from the firm as a result.[2]

Information Transfer and Stock Price Reactions

Our study focuses on examining whether a contagion firm that has a common director with a restating firm suffers market price decline within a short window period surrounding the restatement announcement of the restating firm; that is, whether there is an information transfer effect of restatements through common directorships. Information transfer effects have been examined in several contexts. One major stream of research looks at intra-industry information

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[2] This is also consistent with the argument of Fama and Jensen (1983, 315) that outside directors "use their directorships to signal to the internal and external markets for decision agents that (1) they are decision experts…" To the extent that the labor market perceives restatements as a signal of low quality of monitoring, the directors in the restating firms could be penalized.

transfers when news released by one firm affects the stock prices of other firms in the same industry (Foster 1981; Clinch and Sinclair 1987; Pownall and Waymire 1989; Han and Wild 1990; Freeman and Tse 1992; Ramnath 2002). The results from these studies generally suggest that investors perceive the information from the announcing firms to be useful in updating their expectations for non-announcing firms. Other studies also find that information content in voluntarily disclosed management earnings forecasts is transferred from forecast firms to non-forecast firms within the same industry (Baginski 1987; Han et al. 1989; Pyo and Lustgarten 1990).[3]

The extant literature also explores information transfers in the context of auditor reputation. Chaney and Philipich (2002) show that 287 Andersen clients included in the Standard & Poor's (S&P) 1,500 Index experienced significantly negative price reactions at the document shredding date and that the price reaction was more negative for Andersen's Houston clients.[4] Krishnamurthy et al. (2006) investigate whether the decline in Andersen's reputation, due to its criminal indictment on March 14, 2002, adversely affected the stock market's perception of the audit quality of the other Andersen clients. The authors find that when news about Andersen's indictment was released, the market reacted negatively to Andersen clients. Also, the indictment period's abnormal return is significantly more negative when the market perceived the auditor's independence to be threatened.

Gleason et al. (2008) examine the intra-industry contagion effect of restatements and find that restatements that adversely affect shareholder wealth at the restating firm also induce share

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[3] Other forms of information transfers that have been explored in accounting-related contexts include bank loan-loss reserves (Docking et al. 1997) and retailers' monthly sales reports (Olsen and Dietrich 1985).

[4] A recent study by Nelson et al. (2008) suggests that the negative client stock returns following the revelation that Enron documents had been shredded are attributable to confounding effects as opposed to a loss of Andersen's reputation. However, Nelson et al. (2008) caution that their study does not suggest that auditor reputation is unimportant to the capital markets; rather, their analysis highlights the difficulty of identifying and quantifying a reputation effect in the context of an event study contaminated by confounding factors.

price declines among non-restating firms in the same industry. These share price declines seem to reflect investors' accounting quality concerns, as peer firms with high industry-adjusted accruals experience a more pronounced share price decline than do low-accrual firms. The results are consistent with the notion that some accounting restatements cause investors to reassess the financial statement information previously released by the restating firm's industry peers.

The results from prior research on the monitoring role of directors and market reactions to restatement announcements suggest that investors view the directors of the restating firms as having low quality in monitoring the financial reporting of the restating firms.[5] The research on information transfer suggests that investors perceive the information they learn about an announcing firm to be useful in updating their expectations of similar information at other firms that share some common characteristics with the announcing firm. Along this line of reasoning, we expect that information on the monitoring quality of a director could be transferred from a restating firm to a contagion firm. To the extent that restatements cause investors to perceive the tainted directors to be also of low quality in monitoring the financial reporting of the contagion firms, investors are likely to alter their perceptions of the financial statements issued by the contagion firms. Given this, the stock prices of the contagion firms should move in a direction consistent with those of the restating firms. Our first hypothesis is as follows:

H1: The contagion firms experience negative stock price reactions when the corresponding restating firms announce restatements and observe stock price declines.

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[5] In this study, we focus on the quality of a firm's financial reporting because it is closely related to restatements; a restatement indicates low quality of the director in monitoring the firm's financial reporting.

Factors Associated with the Contagion Effect of Restatements

If indeed a restatement at the restating firm causes investors to perceive a lower quality of monitoring at the contagion firms and alter their perceptions of the financial statements issued by the contagion firms, investors would scrutinize the accounting practices and financial disclosures of the contagion firms to determine whether these firms employ dubious accounting practices and/or misrepresent financial performance in a manner similar to that of the restating firms. As such, investors are more likely to alter their perceptions about the financial statements issued by the contagion firms when these firms have greater financial reporting quality concerns. Consequently, we expect the contagion effect to be more severe when the quality of financial reporting at the contagion firm is lower. We formulate our second hypothesis as follows:

H2: The negative stock price reactions at the contagion firms when the corresponding restating firms announce restatements are more pronounced if the quality of financial reporting at the contagion firms is lower.

While we emphasize the tainted directors' monitoring role at the contagion firms, we recognize that not all directors have equal responsibility for financial reporting. The board of directors typically delegates the responsibility of monitoring financial reporting quality to the audit committee. Several studies have shown that the audit committee plays an important role in monitoring financial reporting (Klein 2002; Carcello et al. 2002; DeZoort 1997), and internal controls (Krishnan 2005; Zhang et al 2007; Goh 2009). Srinivasan (2005) also finds that the audit committee members especially are held more culpable for financial reporting failure than the non-audit committee members when there is a restatement because they have the ultimate board-level responsibility for financial reporting oversight. Therefore, if information transfer of restatements through common directorships does exist, we expect that investors are more likely

to alter their perceptions about the tainted director's quality in monitoring financial reporting (and hence the financial statements issued by the contagion firms) if the director is an audit committee member. We formulate our third hypothesis as follows:

H3: The negative stock price reactions at the contagion firms when the corresponding restating firms announce restatements are more pronounced if the tainted directors are audit committee members of the contagion firms.

III. RESEARCH DESIGN

Empirical Models and Measures of the Directors' Monitoring of Financial Reporting

Our first hypothesis relates to the contagion effect of restatements through common directorships. Hence, we first conduct univariate tests to see whether the contagion firms experience statistically significant negative abnormal returns when the corresponding restating firms announce restatements. Our other hypotheses relate to the factors explaining the cross-sectional variation in the abnormal returns experienced by the contagion firms. As indicated previously, we focus on two factors associated with the director's monitoring: the quality of financial reporting and the director's audit committee membership at the contagion firm. Hence, we conduct multivariate analysis to examine the association between the contagion firms' abnormal returns and the above two factors, using the model as follows:

$$
\begin{aligned}
CAR_{i,t} = \ & \beta_0 + \beta_1 FR\_QUALITY_{i,t} + \beta_2 DIR\_AC_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 BM_{i,t} + \beta_5 EP_{i,t} \\
& + \beta_6 DEBTEQ_{i,t} + \beta_7 RES\_RET_{i,t} + \beta_8 RES\_SIZE_{i,t} + \beta_9 SAMEAUD_{i,t} \\
& + \beta_{10} FIRSTMATCH_{i,t} + \beta_{11} NORESBEF_{i,t} + \delta \cdot YEAR_{i,t} + \phi \cdot IND_{i,t} + \varepsilon_{i,t}, \quad (1)
\end{aligned}
$$

where *CAR* equals the size-adjusted cumulative abnormal return of a contagion firm over a three-day window period, from one day before to one day after the corresponding restating firm's restatement date, *FR_QUALITY* is a measure of financial reporting quality, *DIR_AC* is an

indicator variable coded 1 if the tainted director is an audit committee member of the contagion firm and 0 otherwise. The other variables are control variables (discussed below) that we expect to be associated with the contagion firm's stock price movements around the restating firm's restatement date. The size-adjusted cumulative abnormal return equals the buy-and-hold return less the NYSE/AMEX/NASDAQ market capitalization decile return for the stock, both accumulated over the specified window. The subscripts, *i* and *t*, denote firm and time period, respectively. The time period for the independent variables involving accounting numbers and share prices, other than *RES_RET,* refers to the most recent financial year of the contagion firms before the restatement date.

We use three measures to proxy for financial reporting quality. The first measure is total accruals (*TACC*), which equals earnings (*EARN*) less net cash flows from operations (*CFO*). *EARN* equals net income before extraordinary items ("IB" in Compustat) divided by lagged total assets ("AT" in Compustat). *CFO* equals net cash flows from operations ("OANCF" in Compustat, if the format of the cash flow statement SCF = 7) divided by lagged total assets. We use *TACC* as a measure of financial reporting quality since prior research shows that firms with larger accruals are more likely to have restatements (Richardson et al. 2003).

We further decompose *TACC* into nondiscretionary accruals and discretionary accruals based on a cross-sectional version of modified Jones model (Dechow et al. 1995), after controlling for the firm's prior performance (Kothari et al. 2005). Our second measure of financial reporting quality is discretionary accruals (*DA*), which equals total accruals less nondiscretionary accruals. Nondiscretionary accruals (*NDA*) equal the fitted value obtained from

estimating the following model by industry-year:[6]

$$TACC_{i,t} = \phi_1(1/ASSET_{i,t-1}) + \phi_2(\Delta SALES_{i,t} - \Delta AR_{i,t}) + \phi_3 PPE_{i,t} + \phi_4 ROA_{i,t-1} + \varepsilon_{i,t}, \qquad (2)$$

where *TACC* is total accruals and *ASSET* is total assets (both defined above), *ΔSALES* is change

in net sales ("SALES" in Compustat), *ΔAR* is change in net accounts receivable ("RECT" in

Compustat), *PPE* is net property, plant, and equipment ("PPENT" in Compustat), and *ROA* is the

rate of return on total assets ("IB" divided by "AT" in Compustat). *ΔSALES*, *ΔAR*, and *PPE* are

divided by lagged total assets.

Our third measure of financial reporting quality is based on whether or not the firm

reports small positive earnings. Burgstahler and Dichev (1997) present a pooled cross-sectional

distribution of earnings, which shows unusually low frequencies of small losses and unusually

high frequencies of small positive earnings. The authors attribute this phenomenon to evidence

of earnings management by companies to prevent earnings losses. To the extent that investors

perceive firms with small positive earnings as likely to engage in earnings management, they are

more likely to have concerns over the financial reporting quality of these firms. Hence, we

include in Equation (1) an indicator variable, *SPEARN*, which is coded 1 if *EARN* (earnings

before extraordinary items divided by total assets) is between 0 and 0.01, and 0 otherwise.

We conjecture that investors have greater concerns over the financial reporting quality of

the contagion firm when the firm reports (1) higher total accruals, (2) higher discretionary

accruals, or (3) small positive earnings, or when the tainted director is an audit committee

member of the contagion firm. Hence we expect the coefficients on *TACC*, *DA*, *SPEARN*, and

DIR_AC in the regression to be negative.

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[6] Estimating *NDA* by industry-year is consistent with DeFond and Jiambalvo (1994) and Subramanyam (1996). We classify industries based on the first two digits of the firm's SIC and require at least 10 observations within the same industry to estimate *NDA*.

Control Variables

We control for several factors that could affect the contagion stock returns. Following Gleason et al. (2008), we expect greater capital market pressures to heighten investors' concerns over the contagion firm's financial reporting quality, resulting in more negative contagion returns. Larger firms are subject to greater scrutiny by investors and analysts, which could exacerbate a firm's pressure to misstate earnings (Richardson et al. 2003). Hence, we control for firm size (*SIZE*), which equals the natural logarithm of the market value of common equity at the end of the financial year ("CSHO" multiplied by "PRCC_F" in Compustat). Richardson et al. (2003) find that investors' perception of future earnings growth, as measured by book-to-market ratio and earnings-to-price ratio, is related to the probability of restatement. Firms with higher market value relative to book value, or higher price relative to earnings are likely to face greater pressure to manage earnings to deliver the high earnings growth. Hence, we control for the book-to-market ratio (*BM*) and the earnings-to-price ratio (*EP*). *BM* equals book value of common equity ("CEQ" in Compustat) divided by the market value of equity (defined above), and *EP* equals earnings per share ("EPSPX" in Compustat) divided by the share price at financial year-end ("PRCC_F" in Compustat). Also consistent with Gleason et al. (2008), we control for the effect of leverage (*DEBTEQ*) on stock price reactions, where *DEBTEQ* equals total debt (sum of "DLTT" and "DLC" in Compustat) divided by book value of common equity.

We also control for the restating firm's cumulative abnormal returns over the three days surrounding the restatement date (*RES_RET*) because lower abnormal returns at the restating firms are likely indicative of lower monitoring quality of the directors, which would induce a larger contagion effect. Similarly, we control for the size of the restating firm (*RES_SIZE*) using the natural logarithm of market value of common equity because restatements by larger firms are

likely to provoke greater contagion effects than restatements by smaller firms. Further, the contagion effect may be more pronounced if the contagion firm uses the same external auditor as the corresponding restating firm. Hence, we control for *SAMEAUD*, which is an indicator variable coded 1 if the contagion firm and restating firm use the same external auditor and 0 otherwise.

In addition, we control for the effect of prior restatements at either the contagion firm or the corresponding restating firm on the contagion returns. We expect the abnormal returns to be lower if the contagion firm is matched to a restating firm for the first time or if the contagion firm has no restatement history because investors have not previously discounted the monitoring quality of the tainted directors. The two control variables are *FIRSTMATCH* and *NORESBEF*, where *FIRSTMATCH* is coded 1 if it is the first time the firm becomes a contagion firm due to a common tainted director at a restating firm and 0 otherwise, and *NORESBEF* is coded 1 if the contagion firm had no restatement before and 0 otherwise. Finally, we include a set of indicator variables that represent year and industry to control for the year and industry fixed effects.

IV. SAMPLE SELECTION AND DESCRIPTIVE STATISTICS

Sample Selection

We first identify restating firms and restatement dates from the GAO reports. In October 2002 the GAO issued a report titled "Financial Statement Restatements: Trends, Market Impacts, Regulatory Responses, and Remaining Challenges" (GAO 2002). This report contains a list of 919 restatements that occurred between January 1, 1997 and June 30, 2002. An update of the above report was issued in 2006 (GAO 2006) and contains a list of 1,390 restatements that occurred between July 1, 2002 and September 30, 2005. We further retrieve 396 restatements

that occurred between October 1, 2005 and June 30, 2006 from the GAO Financial Restatement Database (GAO-06-1079sp).[7] This results in a total of 2,705 restatements (made by 2,158 firms) that occurred between January 1, 1997 and June 30, 2006.

Our study requires the identification of directors in the restating firms and all the other firms these directors also serve on (i.e., contagion firms). Given the large number of restatements, hand-collection of this information would become unmanageable. Hence, we rely on the RiskMetrics (formerly IRRC) database, which covers director information of S&P 1,500 companies, to identify the directors in the restating firms and contagion firms.

Our sample selection procedure for the restating firms is summarized in Table 1, Panel A. We first merge our list of restating firms with firms included in RiskMetrics and obtain directors data for 625 restatements (by 468 firms in 565 firm-years).[8] We drop 38 restatements that have insufficient stock returns data from CRSP. We also drop 102 restatements that have no common directorship with any other firms in a different industry (based on two-digit SIC). Note that we analyze only the contagion firms that are in a different industry from the corresponding restating firm to eliminate the alternative explanation that the observed contagion effect is driven by industry effects (Gleason et al. 2008). Finally, we drop 208 restatements that have positive cumulative abnormal returns during the three-day window surrounding the restatement announcement.[9] This is because we want to explore the contagion effect of restatements that investors perceive to be negative events.[10] The above procedures leave us with 277 restatements (by 239 firms) in our restatement sample.

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[7] The database can be found at http://www.gao.gov/special.pubs/gao-06-1079sp/index.html.
[8] Some firms have multiple restatements within the same financial year.
[9] One likely reason for the high proportion of positive cumulative abnormal returns for the restating firms around the restatement window is that earnings announcements are made concurrently with the restatement announcement.
[10] Gleason et al. (2008) use the same rationale and remove restating firms with three-day abnormal return of higher than -1 percent. We use a lower threshold of zero to allow for a stronger test of the contagion effect.

Panel B of Table 1 summarizes the sample selection procedure for the contagion firms. Based on the restatement sample, we identify 1,514 observations that have at least one common director with those 277 restatement observations but that are in a different industry from the restating firms. Out of these 1,514 matched observations, we drop 34 that have insufficient stock returns data from CRSP, 213 that are financial institutions,[11] and 72 that have earnings announcement between one day before and one day after the restatement date of the corresponding restating firms. We impose the last requirement to ensure that the contagion firms' stock price changes around the restatement window are not confounded by their own earnings announcement effects. As a result of the above procedures, 1,195 observations remain in our sample. Lastly, we remove the top and bottom 0.5 percentiles of the three-day cumulative abnormal return (12 observations) to avoid the influence of outliers on the analysis. Therefore, our contagion firms sample consists of 1,183 observations (652 unique firms).

Descriptive Statistics

Table 2, Panel A, shows the means, medians, and standard deviations of the variables used in the multivariate analysis for the restating and contagion sample separately. The table also shows the t- (z-) statistics of the test on whether the difference in the mean (median) between the two groups is equal to zero.

The statistics show that, on average, the observations in the contagion sample are more profitable and have higher operating cash flows than do those in the restating sample. There is no significant difference in total accruals between the two groups, but the contagion sample observations have lower discretionary accruals and higher nondiscretionary accruals than do the restating sample observations. The observations in the contagion sample tend to have higher

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[11] We drop financial institutions (SIC between 6000 and 6999) from the contagion sample because accruals are not appropriate measures of financial reporting quality for them. However, we do not drop financial institutions from the restating sample because we do not examine the financial reporting quality of restating firms.

market capitalization and earnings-to-price ratio, lower book-to-market equity and debt-to-equity ratio, and a lower likelihood of reporting small positive earnings than do those in the restating sample. About 25 percent of the contagion sample uses the same external auditor as the corresponding restating firm does. About 42 percent of the observations in the contagion sample are identified as a contagion firm for the first time, and 86 percent of the contagion sample did not have a restatement before the observation is identified as a contagion firm.

We also compare the characteristics of the tainted directors between the contagion firms and restating firms. These characteristics include age (at least 70 years old), tenure, outside directorship, low attendance (attending less than 75 percent of the meetings during the year), being a former employee of the firm, being a relative of the executives of the firm, having transactions with the firm, providing professional services to the firm, and interlocked director. The purpose here is to know whether the tainted directors, who sit on the board of both the contagion and restating firms, have different characteristics at these two types of firms, which might affect investors' perception of the director's monitoring quality. For each tainted director at the contagion firms, we identify the characteristics of this same director at the corresponding restating firm and allow these characteristics to be counted multiple times in the restating group in the case when this director serves on the board of multiple contagion firms.[12] The statistics in Table 2, Panel B, show that there are no significant differences in the characteristics of the tainted directors between the two types of firms, except that the tainted directors are marginally less likely to have provided professional services to the contagion firms than to the restating firms.

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[12] For example, if a director in a restating firm is matched to two contagion firms, the directors' characteristics are counted twice in the restating firm observations, and the same directors' characteristics in the contagion firm observations are averaged out. This treatment ensures that any different statistics between the contagion and restating sample are not driven by the multiple directorships of certain tainted directors.

Overall, we find that the contagion firms are larger and financially healthier and have higher earnings quality than do the restating firms. Hence, poor fundamentals and lower earnings quality are unlikely to be main reasons for any (average) negative stock price reactions experienced by the contagion firms surrounding the restatement events at the restating firms. In addition, as we generally find no significant differences in the characteristics of the common directors between the contagion firms and restating firms, it is unlikely that any negative stock price reactions experienced by the contagion firms are driven by some specific characteristics of the common director at the contagion firms that are not observed at the restating firms.

V. EMPIRICAL RESULTS

Univariate Analyses of Contagion Effect

Table 3 shows the means and medians of the size-adjusted abnormal returns (*CAR*) for both the restating and contagion firms. For the restating firms, the mean three-day *CAR*, accumulated from Day -1 to Day +1, where Day 0 is the restatement date, equals -6.77 percent. This significantly negative mean return is expected because our restating firms sample is restricted to firms that have negative stock price reactions to the restatement event. The results are similar for longer return windows and for the medians of *CAR*. The abnormal returns for the period before the restatement dates are not significantly different from zero.

Turning to the contagion firms, the mean three-day *CAR* (Day -1 to Day +1) equals -0.21 percent, which is statistically significant at the 5 percent level. The mean five-day *CAR* (Day -1 to Day +3), seven-day *CAR* (Day -1 to Day +5), and 11-day *CAR* (Day -1 to Day +10) range from -0.33 percent to -0.40 percent and they are also statistically significant.[13] The results are

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[13] Gleason et al. (2008) report a mean three-day *CAR* of -0.5 percent for the industry peers of the restatement firms. Krishnamurthy et al. (2006) report a mean market reaction of -0.8 percent for the audit clients of Arthur Andersen

qualitatively similar for the medians of *CAR*. These results show that announcement of

restatement by a firm induces a statistically reliable stock price decline at a contagion firm that

shares a common director with the restating firm. The mean and median *CAR* for the pre-

restatement period (Day -10 to Day -2) is not significantly different from zero. Overall, the

results in Table 3 provide evidence supporting our first hypothesis of a contagion effect of

restatement through common directorships.

Table 4 reports the mean abnormal returns over a three-day window (Day -1 to Day +1)

for the contagion firms partitioned by financial reporting quality and the tainted director's audit

committee membership at the contagion firm. Since accruals are continuous variables, we

partition the sample into quintiles of *TACC* and *DA*, where quintile 1 (5) consists of observations

with the lowest (highest) accruals. Hence, quintile 1 (5) shows the contagion firms with the

highest (lowest) financial reporting quality. Panel A of Table 4 shows that the mean *CAR* is

significantly negative for quintiles 3 and 5 of *TACC* (-0.53 percent and -0.68 percent,

respectively), and for quintile 5 of *DA* (-0.62 percent). Panel B of Table 4 reports the mean three-

day *CAR* when the sample is partitioned by *SPEARN* (i.e., the indicator variable representing

small positive earnings). The mean *CAR* is significantly negative for the observations with

SPEARN = 1 (-1.56 percent) but not for the observations with *SPEARN* = 0 (-0.14 percent).

Taken together, these results suggest that the contagion effect of restatements through common

directorships is more pronounced for firms with greater financial reporting concerns.

Table 4, Panel C, reports the results when the sample is partitioned by the tainted

director's audit committee membership at the contagion firms (*DIR_AC*). The mean *CAR* is

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when news about Arthur Andersen's indictment was released. The mean abnormal return we find differs from that
reported in the above two studies. However, Arthur Andersen's indictment was a high profile case, and note that we
examine only the S&P 1,500 firms which are larger and financially healthier than the general population of firms.
This could explain the lower mean contagion returns obtained in our study.-

significantly negative for the observations with *DIR_AC* = 1 (-0.55 percent) but not for the

observations with *DIR_AC* = 0 (0.01 percent). The results from the tests of median *CAR* for the

partitioned sample (not presented) are similar to those from the tests of means presented in Table

4. Hence, it appears that investors at the contagion firms react more negatively to the restatement

event at the restating firms when the tainted directors serve as audit committee members of the

contagion firms. Overall, the univariate test results for the partitioned sample show that

contagion firms with lower financial reporting quality or with a tainted director who bears more

responsibility for financial reporting observe a more severe contagion effect during the three

days surrounding the restatement date of the corresponding restating firm.

Multivariate Analyses of Contagion Effect

Table 5 presents the results from the regression of abnormal returns on measures of

financial reporting quality, the tainted director's audit committee membership at the contagion

firms, and the control variables.[14] For brevity, we do not present the coefficient estimates for the

year and industry effects. Our measures of financial reporting quality include total accruals

(*TACC* in Model 1), discretionary accruals (*DA* in Model 2), and small positive earnings

(*SPEARN* in Model 3). The results show that the coefficients on *TACC*, *DA*, and *SPEARN* equal -

0.0199, -0.0209, and -0.0147, respectively, and they are all statistically significant.[15] Thus,

investors of the contagion firms react more negatively to the restatement events at the

corresponding restating firms if the contagion firms report higher levels of total accruals and

discretionary accruals, and small positive earnings. These results are consistent with H2.

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[14] In the regressions we calculate *t*-statistics using robustness standard errors adjusted for clustering by firm. That is, we treat the observations as independent across firms but not necessarily independent within a firm (Rogers 1993).
[15] The coefficient for *SPEARN* translates into abnormal returns of -1.47 percent. When we replace the raw values of *TACC* and *DA* in the regression by quintile rankings scaled to range between zero and one (i.e., (quintile - 1)/4), the coefficient for *TACC* and *DA* equals -0.0095 and -0.0131, respectively. Both coefficients are statistically significant at the 5 percent level, suggesting a difference in *CAR* of 0.95 percent and 1.31 percent between the two extreme quintiles of total accruals and discretionary accruals, respectively.

The results in Table 5 also show a significantly negative coefficient on *DIR_AC*, which equals about -0.005 in the three models. This coefficient translates into abnormal returns of -0.5 percent. Thus, investors of the contagion firms react more negatively to the restatement events at the corresponding restating firms if the tainted director is an audit committee member at the contagion firm than otherwise. These results are consistent with H3.[16]

Turning to the control variables, the coefficient on *EP*, one of the capital market pressure variables, is always significantly positive, indicating that contagion firms with a lower earnings-to-price ratio (i.e., higher growth expectations) experience a larger stock price decline than do those with a higher earnings-to-price ratio. The other two capital market pressure variables, *SIZE* and *BM*, are not statistically significant. The coefficient on *DEBTEQ* is significantly negative, suggesting that contagion stock returns are lower for firms with higher levels of leverage. The coefficient on *FIRSTMATCH* is marginally significantly negative in Models 2 and 3, which suggests a more severe contagion effect if investors at the contagion firms have not previously discounted the monitoring quality of the tainted director.[17] All the other control variables are not statistically significant at the conventional levels.

Overall, the evidence in Table 5 is consistent with the notion that accounting restatements induce stock price declines among the contagion firms due to investors' concerns over the monitoring quality of the tainted directors at the contagion firm. The evidence is supported by the findings that contagion stock returns are significantly lower if the contagion firm has lower financial reporting quality and if the tainted director takes more responsibilities in monitoring the financial reporting at the contagion firm.

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[16] The results are similar when *DIR_AC* is coded one if the tainted director is an audit committee member at the restating firm and zero otherwise,

[17] The mean three-day *CAR* equals -0.43 percent (t = -2.27) for the contagion firm observations with *FIRSTMATCH* equal to one and -0.04 percent (t = -0.39) for the observations with *FIRSTMATCH* equal to zero.

Supplemental Tests

Contagion Effect not Driven by Firms with Small Positive Earnings

Table 4 shows that firms that reports small positive earnings experience the most negative contagion stock returns of -1.56%. To ensure that the results in this study are not driven by this group of firms, we examine the robustness of our results after removing these firms from the sample. Untabulated results show that the mean *CAR* is still significantly negative for quintile 5 of *TACC* (-0.66 percent) and quintile 5 of *DA* (-0.59 percent), and when the tainted directors are audit committee members of the contagion firms (-0.48 percent). Further, the coefficients on *TACC* and *DA* remain significantly negative in the regression. Finally, for the full contagion firm sample, when we include both *SPEARN* and *TACC* (or *DA*) in the same regression, we obtain similar results as before, when we consider these two variables separately. That is, both *SPEARN* and *TACC* (or *DA*) remain significantly negative. These results show that small positive earnings and high accruals have different types of contagion effects.

Contagion Effect through Common Auditors

The results in Table 5 do not show a statistically significant coefficient on *SAMEAUD* (an indicator variable that equals one if the contagion firm has the same auditor as the restating firm and zero otherwise). Nevertheless, we conduct further tests to rule out the alternative explanation that our results are driven by the contagion effect through common auditors. We eliminate contagion firms that use the same auditor as the corresponding restating firms (about 25 percent of the contagion firm sample) and replicate the regression analyses after dropping *SAMEAUD* from Equation (1). The results are presented in Table 6. The coefficients on the variables for financial reporting quality and *DIR_AC* remain negative and statistically significant. Therefore, it is unlikely that the contagion effect we find earlier is driven by the effect of common auditors.

Information Transfers through Affiliates and Supply Chain Partners

It is possible that the restatement event at a firm can induce negative valuation effects on its affiliates and supply chain partners (i.e. customers and suppliers) by altering investors' perception of economic prospects and financial reporting credibility of these stakeholders. Given this, we investigate an alternative explanation that the contagion effect reported in our study is driven by this information transfer effect. We sort our restating firm sample alphabetically and check the 10-K filings of the first 50 firms (out of 239 unique firms) to see whether the matched contagion firms are affiliated companies, customers, or suppliers of these firms. However, we are not able to identify such relationships in any of the 193 contagion firm observations that are matched by these 50 restating firms.[18] Therefore, it is unlikely that our results are attributable to the information transfer effect of such relationships.

Tainted Independent Directors at the Contagion Firms

The academics and regulators have emphasized the role of independent directors in monitoring financial reporting. For example, the Sarbanes-Oxley Act (2002) requires audit committees to be composed entirely of independent directors, and prior studies show that board and audit committee independence is positively associated with the quality of accounting (Klein 2002; Dechow et al. 1996). Hence, we replicate the regression analyses based on only the observations that involve a tainted director who is independent at the contagion firm (about 80 percent of our contagion sample).[19] The regression results (not tabulated) based on this restricted sample of tainted independent directors are generally consistent with those in Table 5. Hence, the

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[18] Companies are required to disclose their major investors, investees, customers, and suppliers in the 10-K filings. We use the names of the contagion firms as key words when searching the 10-K filings of the restating firms. If a contagion firm's name does not appear in any part of the corresponding restating firm's 10-K filings, we think it is unlikely that this contagion firm is an affiliated company or a major customer or supplier of the restating firm.
[19] Fama and Jensen (1983) suggest that the risks and rewards of effective monitoring are more applicable to outside directors. We use the classification scheme in RiskMetrics to identify the directors who are independent.

contagion effect of restatements reported in our study is not likely driven by tainted non-independent directors who have weaker incentives in monitoring the financial reporting of a firm.

Characteristics of Tainted Directors and Contagion Stock Returns

In the above analyses, we find that the stock price reactions at the contagion firms are more negative if the tainted directors serve on the audit committee of the contagion firms. To explore whether certain characteristics of the tainted directors could moderate or exacerbate the contagion effect associated with their audit committee membership at the contagion firms, we add the director characteristics listed in Panel B of Table 2, as well as their interaction effects with *DIR_AC*, to the regression analyses. Untabulated results show that all the coefficients on the director characteristics and the interaction effects are not statistically significant at the conventional levels, except for *DIR_AC*PROFSERV*. The coefficient on this interaction term is negative and robustly significant ($p < 0.01$), suggesting that the contagion effect associated with a tainted director's audit committee membership at the contagion firm is further exacerbated if the director provides professional services to that contagion firm. This result provides some evidence that investors are more concerned with the monitoring quality of the tainted director at the contagion firm surrounding the restatement event at a corresponding restating firm if the tainted director's independence appears more likely to be compromised.

Contagion Stock Returns over Different Length of Windows

The results in Table 3 show that contagion stock returns are negative and robustly significant during the announcement periods from Day -1 to at least Day +10. We replicate our regression analyses using various return windows (five-day, seven-day, and 11-days). The results (not tabulated) show that the coefficients on the variables for financial reporting quality are significantly negative for the five-day window, but not for the seven-day and 11-day windows.

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The coefficient on *DIR_AC* is not statistically significant for any of the longer return windows. Taken together, the results from the analyses of different return windows suggest that our findings for the association between contagion returns and the monitoring quality of the tainted directors at the contagion firms presented in Table 5 fade over a longer return-window period. Note, however, that examining contagion returns over longer windows may have its limitations. As the return window extends, more confounding events are likely to occur; an example of which is earnings announcements made by the contagion firms or their industry peers.

VI. CONCLUSION

We examine whether restatements that adversely affect shareholder wealth at restating firms also induce negative stock price reactions among contagion firms that have directors who sit on the board of the restating firms. We find that contagion firms experience a mean size-adjusted abnormal return of -0.21 percent over a three-day window surrounding the restatement dates of the restating firms, and this negative mean abnormal return is statistically significant. Further, the mean three-day abnormal return is more negative if the contagion firm has lower financial reporting quality or if the tainted director is an audit committee member of the contagion firm. In the multivariate analyses, we find that the abnormal returns are lower if the contagion firm has (1) higher total accruals, (2) higher discretionary accruals, or (3) small positive earnings, or if the tainted director is an audit committee member of the contagion firm. The supplemental analyses show that our findings are unlikely due to the effect of common auditors by the contagion and restating firms or driven by tainted directors who are non-independent and may have weak incentives to monitor financial reporting. Overall, the empirical results are consistent with a contagion effect of restatements through common directorships.

Gleason et al. (2008) find that restatements that adversely affect shareholder wealth at the restating firm induce a negative three-day abnormal return of -0.5 percent among non-restating firms in the same industry. In comparison, we obtain a contagion return of -0.21 percent over a three-day window period. One reason for the smaller return we obtain in our study is that our sample is restricted to S&P 1,500 firms, which tend to be larger, financially healthier, and less risky than the average firms. This likely prevents us from finding larger contagion returns in our study. However, we find that the three-day contagion return becomes more pronounced when we consider contagion firms in which investors are more likely to have financial reporting concerns. For instance, the mean abnormal return is more negative at -0.68 percent (-0.62 percent) for contagion firms in the highest quintile of total accruals (discretionary accruals), and -1.56 percent for contagion firms that recorded a small positive earning. In addition, the mean abnormal return is -0.55 percent if the tainted director is an audit committee member of the contagion firm. Hence, the contagion returns we document in this study is non-trivial.

While prior studies have documented contagion effects in various contexts, primarily the transfers of information within the same industry, our study is a first attempt to examine a contagion effect by virtue of a director's role as internal monitors of the financial reporting of a firm. Our findings of a contagion effect through common directorships shed light on how information on the monitoring quality of a director implicated in a restatement event can be transferred to other non-restating firms these directors also serve on, and how investors at the non-restating firms can make use of this information to infer the monitoring quality of these directors and/or the financial reporting quality of the non-restating firms. Our findings also provide a possible explanation why the external labor market may discipline directors who are associated with monitoring failure as evidenced by a financial restatement (Srinivasan 2005).

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TABLE 1
Sample Selection Procedure

Panel A: Restating firms

	Observations
Number of restatements per GAO Report	2,705
Less: Number of restatements that	
Have no director information in RiskMetrics	(2,080)
Have insufficient stock returns data	(38)
Have no common directorship with any other firms included in RiskMetrics and in a different industry	(102)
Have positive cumulative size-adjusted abnormal returns during the three days surrounding the restatement announcement	(208)
Number of restatement observations in our sample (239 unique firms)	277

Panel B: Contagion firms that share a common director with the restating firms

	Observations
Number of observations that are matched with the above 277 restatement observations and that are in different industries from the restatement firms	1,514
Less: Number of matched observations that	
Have insufficient stock returns data	(34)
Are financial institutions	(213)
Have earnings announcement date concurrent with the restating firm's restatement announcement date	(72)
	1,195
Less: Outliers (top and bottom 0.5% of the cumulative size-adjusted abnormal returns during the three days surrounding the restatement announcement)	(12)
Number of contagion observations in our sample (652 unique firms)	1,183

This table provides details of our sample construction. Panels A and B show the steps involved in the selection of the restating firms sample and contagion firms sample, respectively.

TABLE 2
Descriptive Statistics of Variables

		Restating Firms				Contagion Firms			Test for diff. in mean and median	
	n	mean	median	Std Dev.	n	Mean	Median	Std Dev.	t-stat.	z-stat.

Panel A: Firm characteristics

	n	mean	median	Std Dev.	n	Mean	Median	Std Dev.	t-stat.	z-stat.
EARN	276	0.031	0.033	0.170	1,179	0.039	0.054	0.335	0.60	4.32***
TACC	263	-0.064	-0.054	0.143	1,178	-0.077	-0.059	0.258	-1.18	-1.13
DA	251	-0.000	-0.008	0.241	1,152	-0.038	-0.016	0.292	-2.13**	-2.37**
NDA	251	-0.064	-0.044	0.214	1,152	-0.035	-0.038	0.204	2.02**	2.37**
CFO	263	0.095	0.081	0.127	1,178	0.117	0.109	0.136	2.32**	4.81***
SPEARN	276	0.083	0.000	0.277	1,179	0.038	0.000	0.192	-2.57**	-3.20***
DIR_AC	273	0.399	0.000	0.491	1,167	0.410	0.000	0.492	0.31	0.31
SIZE	276	7.757	7.666	1.472	1,176	8.280	8.163	1.668	5.18***	4.75***
BM	276	0.494	0.436	0.413	1,176	0.442	0.384	0.344	-1.94*	-2.79***
EP	276	-0.003	0.038	0.241	1,175	0.022	0.045	0.224	1.61	2.30**
DEBTEQ	275	1.598	0.730	4.759	1,178	0.718	0.633	2.882	-2.94***	-1.90*
SAMEAUD	N.A.				1,183	0.245	0.000	0.430		
FIRSTMATCH	N.A.				1,183	0.418	0.000	0.493		
NORESBEF	N.A.				1,183	0.859	1.000	0.348		

Panel B: Characteristics of common directors

	n	mean	median	Std Dev.	n	Mean	Median	Std Dev.	t-stat.	z-stat.
AGE70	1,183	0.086	0.000	0.281	1,183	0.086	0.000	0.281	0.00	0.00
TENURE	1,162	7.840	6.000	6.270	1,162	7.907	6.000	6.324	0.26	0.38
OUTSIDEBOARD	1,165	2.551	2.000	1.492	1,165	2.536	2.000	1.470	-0.25	-0.14
LOWATTEND	1,183	0.014	0.000	0.116	1,183	0.019	0.000	0.135	0.98	0.98
FORMEREMP	1,183	0.023	0.000	0.149	1,183	0.030	0.000	0.172	1.15	1.15
RELATIVE	1,183	0.003	0.000	0.050	1,183	0.007	0.000	0.082	1.51	1.51
TRANSACT	1,183	0.025	0.000	0.155	1,183	0.020	0.000	0.141	-0.69	-0.69
PROFSERV	1,183	0.047	0.000	0.211	1,183	0.033	0.000	0.179	-1.68*	-1.68*
INTERLOCK	1,183	0.007	0.000	0.082	1,183	0.005	0.000	0.071	-0.54	-0.54

The statistics in Panel A are based on the observations identified in the sample selection procedures described in Table 1. The statistics in Panel B are based on the tainted directors in the contagion firms and those same directors in the restating firms (thus the contagion sample and the restating sample have equal numbers of tainted directors).

The variables in Panel A are defined as follows. *EARN* is net income before extraordinary items divided by lagged total assets. *CFO* is net cash flows from operations divided by lagged total assets. *TACC* is total accruals, measured by *EARN* minus *CFO*. *NDA* is nondiscretionary accruals, estimated using a cross-sectional version of modified Jones model, after controlling for the company's prior performance. *DA* is discretionary accruals, which equal *TACC* less *NDA*. *SPEARN* is an indicator variable coded 1 if *EARN* is positive but less than 0.01, and 0 otherwise. *DIR_AC* is an indicator variable coded 1 if the tainted director of the restating firm is an audit committee member of the contagion firm and 0 otherwise. *SIZE* is the natural logarithm of the market value of common equity at the end of the financial year. *BM* is book value of equity divided by the market value of equity at financial year-end. *EP* is earnings-to-price ratio, which equals earnings per share divided by the share price at financial year-end. *DEBTEQ* is total debt divided by common equity. *RES_RET* is the restating firm's three-day cumulative abnormal returns, from

one day before to one day after the restatement announcement. *RES_SIZE* is the natural logarithm of market value of common equity of the restating firm. *SAMEAUD* is an indicator variable coded 1 if the restating firm and contagion firm have the same external auditor and 0 otherwise. *FIRSTMATCH* is an indicator variable coded 1 if it is the first time the contagion firm is "matched" to a restating firm due to a common director and 0 otherwise. *NORESBEF* is an indicator variable coded 1 if the contagion firm has no restatement history at the time the corresponding restating firm's restatement was announced, and 0 otherwise. The annual financial numbers are for the last financial year ended before the restatement announcement date.

The director characteristics in Panel B are measured in accordance with RiskMetrics. *AGE70* is an indicator variable coded 1 if the director is at least 70 years old and 0 otherwise. *TENURE* is the number of years the director has served on the board of the contagion firm. *OUTSIDEBOARD* is the number of other company boards the director serves on. *LOWATTEND* is an indicator variable coded 1 if the director attended less than 75 percent of board/committee meetings and 0 otherwise. *FORMEREMP* is an indicator variable coded 1 if the director is a former employee of the firm and 0 otherwise. *RELATIVE* is an indicator variable coded 1 if the director is a relative of an executive officer and 0 otherwise. *TRANSACT* is an indicator variable coded 1 if the director or the director's employer is a customer of or supplier to the firm, and 0 otherwise. *PROFSERV* is an indicator variable coded 1 if the director is a provider of professional services—such as legal, consulting or financial—to the firm, and 0 otherwise. The services may be provided either personally by the director or by the director's employer. *INTERLOCK* is an indicator variable coded 1 if interlocking directorship exists for that director and 0 otherwise.

The last two columns show the t- and z-statistics for tests of equality of mean and median between the restating sample and the contagion sample. *, **, and *** indicate significance at the 10, 5, and 1 percent levels, respectively, based on a two-tailed test.

TABLE 3
Size-Adjusted Abnormal Returns for the Restating and Contagion Firms around the Restatement Event

	Restating Firms			Contagion Firms		
	n	**Mean**	**Median**	**n**	**Mean**	**Median**
Day -10 to Day -2	276	0.24%	0.02%	1174	0.22%	-0.12%
Day -1 to Day +1	277	-6.77% [#]	-3.72%[#]	1183	-0.21%**	-0.20%**
Day -1 to Day +3	277	-6.72% [#]	-4.05%[#]	1183	-0.35%**	-0.37%***
Day -1 to Day +5	277	-6.89% [#]	-4.63%[#]	1183	-0.33%**	-0.21%**
Day -1 to Day +10	277	-6.42% [#]	-3.63%[#]	1183	-0.40%*	-0.40%**
Day -1 to Day +30	277	-5.86% [#]	-4.28%[#]	1183	0.17%	0.00%

Size-adjusted abnormal return equals the buy-and-hold return less the NYSE/AMEX/NASDAQ market capitalization decile return for the stock, both accumulated over the indicated window. Day 0 is the announcement date of the restatement by the restating firm according to the GAO reports.

[#] Statistically significant at the 1 percent level based on a two-tailed test. Note that our restating sample excludes restatements with positive size-adjusted abnormal returns during the three days surrounding the restatement event (from Day -1 to Day 1).

*, **, and *** indicate statistical significance at the 10, 5, and 1 percent levels, respectively, based on a two-tailed test.

TABLE 4
Mean Three-Day Size-Adjusted Abnormal Returns (*CAR*) for the Contagion Firms around the Corresponding Restating Firm's Restatement Event – Sample Partitioned by Proxies for Financial Reporting Quality and Audit Committee Membership of the Tainted Directors

Panel A: Sample partitioned by total or discretionary accruals

	Partitioned by total accruals		Partitioned by discretionary accruals	
	n	**Mean *CAR***	**n**	**Mean *CAR***
Quintile 1 (Lowest values)	236	-0.11%	231	-0.09%
Quintile 2	236	0.06%	230	-0.27%
Quintile 3	235	-0.53%**	231	0.08%
Quintile 4	236	0.28%	230	-0.12%
Quintile 5 (Highest values)	235	-0.68%***	230	-0.62%**

Panel B: Sample partitioned by whether the firm reports small positive earnings

	n	**Mean *CAR***
Small positive earnings	45	-1.56%***
Not small positive earnings	1,134	-0.14%

Panel C: Sample partitioned by the tainted directors' audit committee memberships

	n	**Mean *CAR***
Audit committee members	478	-0.55%***
Non-audit committee members	689	0.01%

Size-adjusted abnormal return equals the buy-and-hold return less the NYSE/AMEX/NASDAQ market capitalization decile return for the stock, both accumulated over the three days (Days -1, 0 and +1) around the corresponding restating firm's restatement event, where Day 0 is the announcement date of the restatement by the restating firm according to the GAO reports. In Panel A, the sample is partitioned into quintiles of total accruals (*TACC*) or discretionary accruals (*DA*), as defined in Table 2. In Panel B, an observation is classified into the small positive earnings group if the earnings before extraordinary items divided by lagged total assets is positive but less than 0.01. In Panel C, the sample is partitioned by the tainted directors' audit committee memberships in the contagion firms. The number of observations in this table is slightly less than that in Table 3 due to missing data on accruals, earnings, and audit committee memberships.

** and *** indicate statistical significance at the 5 and 1 percent levels, respectively, based on a two-tailed test.

TABLE 5
Results from Regression of Three-Day Size-Adjusted Abnormal Returns for the Contagion Firms on Proxies for Financial Reporting Quality, Audit Committee Membership of the Tainted Directors, and Control Variables

Independent variables	Pred. Sign	Model 1	Model 2	Model 3
Intercept	?	-0.0112	-0.0143	-0.0083
TACC	-	-0.0199***		
DA	-		-0.0209**	
NDA	?		-0.0118	
CFO	?	-0.0075	-0.0057	
SPEARN	-			-0.0147***
DIR_AC	-	-0.0050**	-0.0048**	-0.0049**
SIZE	-	-0.0008	-0.0009	-0.0008
BM	+	-0.0031	-0.0031	-0.0020
EP	+	0.0347***	0.0352***	0.0158***
DEBTEQ	-	-0.0012***	-0.0012***	-0.0009***
RES_RET	+	-0.0052	-0.0061	-0.0055
RES_SIZE	-	-0.0002	-0.0002	-0.0003
SAMEAUD	-	-0.0002	-0.000	-0.0004
FIRSTMATCH	-	-0.0045	-0.0047*	-0.0046*
NORESBEF	-	0.0002	-0.0003	0.0004
YEAR fixed effects		Not reported	Not reported	Not reported
INDUSTRY fixed effects		Not reported	Not reported	Not reported
Adjusted R^2		0.0468	0.0440	0.0417
Number of observations		1,150	1,125	1,151

This table presents the results from regression of the contagion firms' three-day size-adjusted abnormal returns surrounding the restatement events at the restating firms on proxies for financial reporting quality, audit committee membership of the tainted directors, and control variables. The proxy variable for financial reporting quality is total accruals (*TACC*) in Model 1, discretionary accruals (*DA*) in Model 2, and an indicator variable that represents small positive earnings (*SPEARN*) in Model 3. *SPEARN* is coded 1 if the earnings before extraordinary items divided by lagged total assets is positive but less than 0.01, and 0 otherwise. See Table 2 for detailed variable definitions.

*, **, and *** indicate statistical significance at the 10, 5, and 1 percent levels, respectively, based on a two-tailed test.

TABLE 6

Results from Regression of Three-Day Size-Adjusted Abnormal Returns for the Contagion Firms on Proxies for Financial Reporting Quality, Audit Committee Membership of the Tainted Directors, and Control Variables (Based on Contagion Firms with a Different Auditor from the Corresponding Restating Firm's)

Independent variables	Pred. Sign	Model 1	Model 2	Model 3
Intercept	?	-0.0182	-0.0196	-0.0130
TACC	-	-0.0299***		
DA	-		-0.0332**	
NDA	?		-0.0239*	
CFO	?	-0.0055	-0.0110	
SPEARN	-			-0.0187***
DIR_AC	-	-0.0056**	-0.0056**	-0.0052*
SIZE	-	-0.0009	-0.0010	-0.0008
BM	+	-0.0044	-0.0047	-0.0040
EP	+	0.0491***	0.0539***	0.0156***
DEBTEQ	-	-0.0015**	-0.0016***	-0.0009*
RES_RET	+	-0.0031	-0.0046	-0.0069
RES_SIZE	-	-0.0000	-0.0000	-0.0003
FIRSTMATCH	-	-0.0022	-0.0025	-0.0025
NORESBEF	-	0.0027	0.0024	0.0025
YEAR fixed effects		Not reported	Not reported	Not reported
INDUSTRY fixed effects		Not reported	Not reported	Not reported
Adjusted R^2		0.0462	0.0452	0.0419
Number of observations		863	844	864

This table presents the results from regression of the contagion firms' three-day size-adjusted abnormal returns surrounding the restatement events at the restating firms on proxies for financial reporting quality, audit committee membership of the tainted directors, and control variables. Only the contagion firms with a different auditor from the corresponding restating firm's are analyzed. The proxy variable for financial reporting quality is total accruals (*TACC*) in Model 1, discretionary accruals (*DA*) in Model 2, and an indicator variable that represents small positive earnings (*SPEARN*) in Model 3. *SPEARN* is coded 1 if the earnings before extraordinary items divided by lagged total assets is positive but less than 0.01, and 0 otherwise. See Table 2 for detailed variable definitions.

*, **, and *** indicate statistical significance at the 10, 5, and 1 percent levels, respectively, based on a two-tailed test.