Do multiple directorships affect firm performance and financial reporting quality? Evidence from mergers and acquisitions

Jing Dai
Baruch College and Graduate Center
City University of New York
09/27/2014

Abstract

This paper examines whether director appointments to multiple boards affect firm performance and financial reporting quality in a setting that addresses the endogeneity of the number of directorships. I use mergers and acquisitions (M&A) which terminate target firms' entire boards as a natural experiment to generate variations in the shocked directors' workload to examine the effect of multiple directorships on firm performance and financial reporting quality of the director-interlocked firms. By using the differences-in-differences method, I find that a decrease in the shocked directors' directorships increase both firm performance and financial reporting quality of the director-interlocked firms. This effect is more pronounced when the shocked directors are the audit committee members of director-interlocked firms or when the boards of the director-interlocked firms on which they serve are busy. Overall, these results provide evidences that the multiple directorships are detrimental to firm performance and financial reporting quality.[1]

[1]This is my position paper for my PhD study at Baruch College, the City University of New York. I wish to thank my committee members: Carol Marquardt (Chair), Rong Huang, and Min Shen for generously offering their time, support and guidance throughout the development of this paper. All comments are welcomed and all errors are on my own.

I. Introduction

The effect of multiple directorships on firm performance and financial reporting quality has long been a controversial issue in both public press and academic fields.

The Wall Street Journal cites an Academy of Management Journal study, which found that "under certain conditions, CEOs with outside board seats performed better than those with no outside seats. When the company was in a low-growth industry, was undiversified, or faced intense competition from rivals, it actually benefited from having a CEO on an outside board." However, lots of institutional reports show that a great number of U.S. public firms have realized that directors with an excessive number of board seats may not have sufficient time to devote to the needs of individual boards and thus imposed numerical limit on their directors' directorships (Spencer Stuart U.S. board index (2013), Institutional Shareholder Service (2013), the National Association of Corporate Directors, and the Council of Institutional Investors[2]).

In academic fields, the empirical evidences on how the multiple directorships affect the firm are also controversial. A stream of literature shows that serving on multiple boards can benefit firms (Masulis and Mobbs 2011; Field et al. 2013). The

[2] Spencer Stuart U.S. board index (2013) shows that 76% of S&P 500 boards impose restriction on other corporate directorships for their board members. 15% of S&P 500 boards restrict their own full-time executives or CEOs to serve no more than two other boards. 93% of S&P 500 boards place restriction on audit committee directors, limiting them to serve on at most two other audit committees. 88% of the boards that do not specify a restriction on other corporate directorships require directors to notify chairman in advance of accepting other directorships or encourage directors to reasonably limit their other board service. The National Association of Corporate Directors, and the Council of Institutional Investors have all recommended various limitations with respect to the number of boards on which directors serve.

idea behind these studies is that, as Fama and Jensen (1983) indicate, serving on multiple boards can be a source of a great diversity of experience and reputational benefits, which are valuable in enhancing directors' advisory and monitoring performance and in turn increasing firm value. However, directors with multiple directorships have been also widely criticized to be too busy to perform their monitoring duties (Core et al. 1999; Shivdasani and Yermack 1999; Loderer and Peyer 2002; Fich and Shivadasani 2006). As Carpeter and Westpha (2001) argue, an individual's information-processing capacity is limited. When a director serves on multiple boards, her/his time and capacity are stretched thinly, inducing information overload. Ferris et al. (2003), however, do not find that multiple directorships are associated with a greater likelihood of securities fraud litigation.

These mixed findings are perhaps not surprising because of the endogeneity issues. On the one hand, the number of directors' directorships can be endogenously determined. This is because directors with multiple directorships are usually directors who have higher ability and better reputation reflected by the superior performance of the firms they serve on so that they can attract more appointments. Therefore, although their time and energy are stretched thinly by multiple directorships, their outstanding ability may still ensure their working efficiency and quality and in turn it is unclear how directors holding multiple directorships affect firm performance. On the other hand, firms' self-selection bias can also cause the endogeneity issue. It is possible that firms with good performance choose directors with multiple directorships because these firms may need certain knowledge and experience that

these busy directors accumulate from serving on multiple boards. But it is also possible that firms with bad performance choose busy directors because these firms may think that directors with multiple directorships will be too busy to keep eyes on them.

To address the endogeneity issues, I use a natural experiment, mergers and acquisitions (M&A thereafter), as a source of exogenous variations in shocked directors' workload to examine the effect of multiple directorships on firm performance of the director-interlocked firms. I define directors who experience a decrease in directorships because the boards on which they sit are terminated by M&A as shocked directors. The other firms these shocked directors still serving on are denoted director-interlocked firms. M&A provide a good opportunity to solve the endogeneity issue mentioned above. On the one hand, M&A usually terminate the target firms' board and thus directors serving on the target firms' board will lose one appointment and obtain extra time and energy to work on remaining appointments. But M&A are unlikely to decrease or enhance directors' ability immediately, which means that M&A only generate variations in directors' workload while keep directors' ability unchanged in the short term, excluding the possibility that firm performance is affected by directors' ability. An underlying premise is that directors always optimize their time and energy and thus once they obtain extra time and energy due to loss of directorships, they will exert the extra time and energy on remaining directorships. Besides, because M&A not only reduce shocked directors' workload but also might change their incentives so that the can work more diligently on the remaining firms in

post-M&A period. If so, the extra time and energy that shocked directors exert on director-interlocked firms not only come from the loss of appointment but also from the change in their incentives. Although it is hard to separate these two sources, they are both caused by M&A and allow directors to exert more time and energy on remaining firms while keep directors' ability unchanged in the short term. On the other hand, it is hard for the director-interlocked firms to predict which directors in the labor market will experience a decrease in directorships due to M&A. Thus, even though the director-interlocked firms can determine to appoint directors with multiple directorships or not, they are unable to select or avoid appointing directors who will be shocked by M&A. Thus, self-selection bias can be avoided. Taken together, the decrease in directorships due to M&A can be treated as an exogenous shock on directors' whole workload and used to test the effect of multiple directorships on firm performance.

Although most of the prior literature focuses on the effect of multiple directorships on firm performance, directors especially the directors on the audit committee, as a pivotal mechanism in governance, provide indispensable oversight of the financial reporting process (Blue Ribbon Committee [BRC] 1999). Therefore, I will also examine the effect of multiple directorships on financial reporting quality.

The exogenous variations in directors' time and energy generated by M&A enable me to use a differences-in-differences research design to more precisely examine the effect of multiple directorships. The treatment group consists of the director-interlocked firms, whose directors experience decrease in directorships only

due to M&A. The control group is composed of the firms whose directors don't experience the decrease in directorships due to M&A and matches the treatment group based on the year, industry (two-digit SIC code) and size (total assets). By doing so, I hope that the control group can be representative of what would have happened in the treatment group without M&A. The first order difference is taken to compare the firm performance and financial reporting quality between treatment group and control group in both pre-M&A and post-M&A period. The first order difference rules out the possibility that the effect of multiple directorships on firm performance and financial reporting quality is driven by directors' busyness or capacity. The second order difference intends to take difference of the first difference and difference out the time trend. Sharma and Iselin (2012) also use a natural experiment, SOX, to examine the relationship between multiple-directorships and financial misstatements. But a major limitation of this study is that SOX is applied to all firms at the same time, which means that their control group will be also affected by SOX. This makes it difficult to difference out the effect of multiple directorships on financial reporting quality caused by the directors' busyness or capacity. It is also challenging for them to identify and distinguish the effect of the regulation from other contemporaneous changes that might have occurred. In turn, all these limitations make their casual inferences about the effects of multiple directorships vulnerable. But this kind of concerns is mitigated in my M&A settings because only the treatment group will be affected by M&A. Besides, my sample only includes firms whose directors experience a decrease in multiple directorships just due to M&A. Firms whose directors lose directorships due

to other reasons are excluded from my sample. Also, I require these shocked directors to serve on the same director-interlocked firms through three years from one year before M&A to one year after M&A and not to take additional directorships after M&A. These data requirements intend to identify the director-interlocked firms whose directors' workload is only affected by M&A but not other events.

I conduct two cross-sectional tests to examine the effect of multiple directorships on firm performance and financial reporting quality in different conditions. One is in audit committee, whose members are usually finance and accounting experts or have a good knowledge of finance and accounting and thus play an important role in providing objective oversight of financial reporting quality. Dechow et al.(1996) find that the incidence of SEC accounting enforcement actions is lower for firms with a formal audit committee. Engel et al.(2010) also documents that firms will compensate audit committee members more highly when monitoring demands are greater. Given audit committee's important role in monitoring financial reporting quality, I also examine the effect of audit committee members' multiple directorships on financial reporting quality.

Another cross-sectional test is conducted in the busy board that at least half of all independent directors serve on at least three boards (Field, Lowry and Mkrtchyan 2013). Because colleague in busy boards may be too busy to share shocked directors' responsibility and workload, I expect that busy board members' multiple directorships will have a more pronounced effect on financial reporting quality.

To measure firm performance, I employ ratio of the director-interlocked firm's

market value to book value of common equity (MB), which is indicative of the valuation that the market assigns to the firm relative to the firm's net assets. High market-to-book ratio suggests every additional dollar invested in the firm would yield attractive return, which indicates both efficient asset utilization and future growth potential. Therefore, a higher market-to-book ratio signals better firm performance.

Based on prior studies, I identify four measurements as the proxies for financial reporting quality: the magnitude of discretionary accruals (Dechow and Dichev 2002); off-balance-sheet liabilities (Barth 1991); unexpected audit fees (Hribar, Kravet and Wilson 2013); and analysts' forecast dispersion (Barron, Kim, Lim, and Stevens 1998). The first three measurements capture bias in financial reporting. Greater discretionary accruals, more off-balance-sheet liabilities, and higher unexpected audit fees signal less reliable, less relevant and low-quality financial reporting. The last measurement, analysts' forecast dispersion, is the indicator of precision of financial information related to firms' performance and operations. The greater the analysts' forecast dispersion, the less precise, less certain and low-quality financial reporting is. I use these measurements to construct a comprehensive score to proxy for the low financial reporting quality.

In order to test the effect of multiple directorships on firm performance and financial reporting quality, I employ a sample of 468 director-interlocked firms and control firms from years 2007 to 2012. I find that firm performance and financial reporting quality increase in post-M&A period after controlling firm characteristic, industry and year fixed effect. Consistent with the conjecture that directors in audit

committee play a more important role in providing oversight of financial reporting process, financial reporting quality in post-M&A period increases more in the audit committee subsample than in full sample. I also find that financial reporting quality in post-M&A period has a greater increase when the board of director-interlocked firm is busy. Overall, my findings suggest that serving on multiple boards reduce directors' ability to effectively monitor the firm operating and financial reporting process.

My study makes several contributions to the literature. While endogeneity issues lead to mixed results of the relationship between multiple directorships and directors' effectiveness of monitoring in the prior literature, I exploit M&A as a natural experiment to generate the exogenous variation in directors' workload to provide endogeneity-free evidence on the relationship between multiple directorships and directors' effectiveness of monitoring. Moreover, most of studies focus on the effect of multiple directorships on firm value and only a few look at the relationship between multiple directorships and financial reporting quality. My study provides additional evidence on the effect of multiple directorships on financial reporting quality in the sense that a natural experiment is used to solve the endogeneity issues.

The rest of the paper is organized as follows. Section II reviews the prior literature and develops empirically testable hypotheses. Section III develops my proxies for financial reporting quality. Section IV describes the research method and presents the results of empirical tests. Section V shows the additional tests and their results. Section VI concludes the paper, including the potential limitations.

II. Prior literature and hypotheses development

Multiple Directorships and Firm Performance

A line of literature shows that multiple directorships can enhance the firm performance. Fama and Jensen (1983) suggest that serving on numerous boards can signal director quality because the multiple board appointments might be the results of the directors' good reputation built by the superior performance of the firms they serve on. Ferris et al. (2003) also find that firm performance has a positive effect on the number of appointment held by a director. These studies provide evidence that firm performance reflects the director's quality and good firm performance will reward the directors with more board appointments. In an experimental setting, Hunton and Rose(2008) find that directors holding multiple directorships are concerned about protecting their reputations, indicating that in order to protect their reputations and avoid litigation risk, directors with multiple directorships will perform their responsibilities diligently. In sum, the prior literature indicates that in order to obtain high labor market reward, protect reputation and avoid litigation risk, directors have incentives to maintain high quality work while serving on the board, which is helpful in increase the firm operation. Consistent with these findings, Masulis and Mobbs (2011) and Field et al. (2013) find that busy boards are common and contribute positively to firm performance. Besides, serving on multiple boards can be a source of a great diversity of experience. For example, Ferris et al.(2003) and Fich and Shivdasani (2006) show that multiple directorships are positively correlated to firm size, indicating that directors with multiple directorships would be more skilled

due to the complexity and magnitude of the firms they oversee. Thus, multiple directorships are valuable in enhancing directors' advisory and monitoring performance and in turn increasing firm value.

In contrast, another stream of studies finds that the directors' monitoring effectiveness is impaired by holding too many directorships. Fich and Shivadasani (2006) find that firms with busy boards are associated with weak corporate governance. These firms exhibit lower market-to-book ratio, weaker profitability, and lower sensitivity of CEO turnover to firm performance. Similarly, Andres et al.(2013) also find that firms with intensely connected supervisory boards are associated with lower firm performance. Core et al.(1999) present that firms with busy directors have higher CEO compensation, suggesting that busy directors are less effective in managerial monitoring than other directors who serve on fewer boards. Shivdasani and Yermack (1999) show that stock price reactions to independent director appointment are significantly lower when the CEO is involved in director selection. Generally, the prior literature suggests that because an individual's information-processing capacity is limited, her/his time and capacity is stretched thinly when she/he serves on multiple boards, inducing information overload. Consequently, directors with multiple directorships may not provide effective monitoring of management.

In sum, whether multiple directorships positively or negatively affect the firm value is an empirical issue. Because of the alternative views regarding multiple directorships, my first hypothesis is stated in null form:

H1: There is no association between director's multiple directorships and firm performance.

Multiple Directorships and Financial Reporting Quality

Board of directors, as an indispensable monitoring mechanism, also plays an important role in providing oversight of the financial reporting quality. However, studies that examine the relationship between multiple directorships and financial reporting quality are not as many as those that focus on the relationship between multiple directorships and firm performance. Thus, I would like to use the exogenous variations in directors' time and energy generated by M&A to revisit this issue and hope to provide more precise evidence on the effect of multiple directorships on the financial reporting quality.

Like firm performance, financial reporting quality may be enhanced or diminished by the multiple directorships in the previous studies. Studies that support a positive relationship between multiple directorship and financial reporting quality suggest that directors serving on multiple boards care about their reputation and would like to avoid potential litigation risk. Thus, they will perform their responsibilities diligently and ensure a high financial reporting quality. Moreover, holding directorships in multiple boards can provide the directors with a wider range of accounting and industry expertise. Besides, Srinivasan (2005) finds that directors of firms that misstate their financial reports are penalized by a loss of board positions while Helland (2006) suggests that directors credited with preventing fraud are rewarded in the director labor market. Taken together, in order to protect reputation, avoid

litigation risk, obtain more expertise and higher labor market reward, directors have incentives to diligently perform their responsibilities.

Conversely, directors with multiple directorships have been also widely criticized to be too busy to perform their monitoring duties. Sharma and Iselin (2012) show a significant positive association between financial misstatements and multiple directorships by using SOX as a natural experiment. Srinivasan (2005) also suggests that the costs of monitoring (e.g., talent, developing the required expertise, and time) may result in director shirking their duties. With less effective monitoring, firms might have a greater agency cost (e.g., Core et al. 1999, Shivdasani and Yermack 1999), which could lead to a low financial reporting quality.

In sum, since the effect of multiple directorships on financial reporting quality is on both sides, my second hypothesis is again stated in the null form:

H2: There is no association between director's multiple directorships and financial reporting quality.

Multiple Directorships and Audit Committee

Audit committee, whose members are usually finance and accounting experts or have a good knowledge of finance and accounting, plays an important role in providing the objective oversight of financial reporting quality. Dechow et al. (1996) find that the incidence of SEC accounting enforcement actions is lower for firms with a formal audit committee. Engel et al. (2010) documents that firms will compensate audit committee members more highly when monitoring demands are greater. Abbott et al. (2004) also find that audit committee independence and meeting frequency are

negatively associated with restatements.

The string of corporate scandals, such as those at Enron, WorldCom, Tyco, and Crossing, led to the introduction of Sarbanes-Oxley Act of 2002 ([SOX] 2002) and raised the concerns about the audit committee directors' monitoring effectiveness due to their multiple directorships. Sharma et al. (2009) find that multiple directorships are negatively associated with audit committee meeting frequency. National Association of Corporate Directors (NACD 2000) and the Council of Institutional Investors (CII 1998) also propose limits on directors' other board seats.

Since audit committee has more direct responsibility of overseeing the financial reporting process, if directors in audit committee are too busy to perform the monitoring , it is likely that audit committee directors' multiple directorships have a bigger effect on financial reporting quality than the other directors' multiple directorships.

The above arguments lead to my third hypothesis:

H3: The decrease in audit committee director's multiple directorships will lead to a higher increase in the financial reporting quality than the decrease in other director's multiple directorships will.

Multiple Directorships and Busy Board

Busy boards are criticized to be less effective in performing their monitoring duty. Field, Lowry and Mkrtchyan (2013) define busy boards as those in which at least half of all independent directors serve on at least three boards. If directors with multiple directorships serve on less busy boards, their colleagues can share their workload. In

order to avoid litigation risk, protect reputation, and obtain higher reward, their colleagues may work diligently and end up with a good job even with a less contribution from directors who are too busy to perform their monitoring duties. Therefore, the negative effect of multiple directorships on financial reporting quality will be mitigated by the less busy board. Oppositely, as Core et al. (1999) and Fich and Shivdasani (2006) suggest, busy boards may distract directors' attention and lower the effectiveness of monitoring. If directors with multiple directorships serve on busy boards, most of board members may be too busy to well monitor the management let alone share each other's workload. Thus, the negative effect of multiple directorships on financial reporting quality will be more manifested in a busy board.

The above discussion leads to my fourth hypothesis:

H4: The decrease in director's multiple directorships will result in a higher increase in the financial reporting quality when the firm she/he serving on has a busy board.

III. Proxies for Financial Reporting Quality

Based on prior studies, I employ four measurements as the proxies for financial reporting quality: the magnitude of discretionary total accruals (Dechow and Dichev 2002), off-balance-sheet liabilities (Barth 1991), unexpected audit fees (Hribar, Kravet and Wilson 2013), and analysts' forecast dispersion (Barron, Kim, Lim, and Stevens 1998). The first three measurements capture bias in financial reporting. Greater discretionary accruals, more off-balance-sheet liabilities, and higher unexpected audit fees signal less reliable, less relevant and low-quality financial

reporting. The last measurement, analysts' forecast dispersion, is the indicator of precision of financial information related to firms' performance and operations. The greater the analysts' forecast dispersion, the less precise, less certain and low-quality financial reporting is. I combine these measurements to construct a comprehensive score to proxy for the low financial reporting quality (LFRQ).

Magnitude of Discretionary Total Accruals

My first proxy for financial reporting quality is the magnitude of discretionary total accruals (|ACC|). Because accruals are estimates of future cash flows (Dechow and Dichev 2002) and the financial statements will be more representative of the firm's underlying performance when there is lower estimation error embedded in the accruals process or less earnings management, high magnitude of discretionary total accruals is indicative of the low financial reporting quality. Therefore, the magnitude of discretionary total accruals is employed to measure the financial reporting quality. I use total accruals rather than current accruals because total accruals are more economically meaningful in the assessment of short-term and long-term firm performance. The magnitude of discretionary total accruals is also the first component included in the LFRQ score. LFRQ score is positively correlated with the magnitude of discretionary total accruals.

Following Teoh, Welch, and Wong (1998) , I use a modified cross-sectional Jones (1991) model to calculate the magnitude of discretionary total accruals. In essence, total accruals are regressed on the change in sales minus the change in accounts receivable, and net property, plant, and equipment in each industry-year. And all

variables are scaled by lagged firm assets. The absolute value of the residual from the regression is the magnitude of the discretionary total accruals.

Off-Balance-Sheet Liabilities

My second proxy for financial reporting quality is off-balance-sheet liabilities (OBSL). Off-balance-sheet liabilities indicate that financial statements do not reflect the resources and claims to resources of how firm uses cash, which decrease the valuation usefulness of firm's financial statements. Moreover, because off-balance-sheet liabilities are discretionary, they can be manipulated by managers. Enron's accounting fraud is a classic business case that manifests how off-balance-sheet liabilities diminish financial reporting quality. Therefore, I add this measure to comprehensive score to proxy for low financial reporting quality.

Based on Barth (1991), off-balance-sheet liabilities (OBSL) are calculated as the residual from a cross-sectional regression of stock prices on assets and liabilities based on industry- year. Negative residuals reflect off-balance-sheet net liabilities and are transformed by taking the absolute value. Positive residuals are set to zero. I expect off-balance-sheet liabilities to be negatively correlated with financial reporting quality but positively associated with LFRQ.

Unexpected Audit Fees

Auditors will suffer great litigation and reputation costs when their clients have financial misstatements (e.g., Palmrose 1987; Thompson and McCoy 2008; Hennes et al.2010). Because of the reputation and litigation risks, auditors can increase working hours or charge higher risk premium, or both when they perceive the financial

reporting quality to be low. Both actions will lead to higher fees. Therefore, this part of audit fees captures the auditor's perception of financial reporting quality.

Hribar, Kravet and Wilson (2013) use a regression-based approach to remove the expected amount of audit fees based on the determinants of the audit that are unlikely to capture accounting quality. Following their approach, I isolate the unexpected audit fees from the total audit fees. Absolute value of the unexpected audit fees (|UAF|) is used as the third proxy for financial reporting quality and also the third component of LFRQ. I expect absolute value of the unexpected audit fees to positively correlate with LFRQ.

Analyst Forecast Dispersion

Prior research indicates that analysts use historical earnings information in predicting firms' future earnings. For example, Abarbanell and Bushee (1997) find that historical earnings explain variation in analysts' forecast revisions. High quality financial reports can reduce both intentional and unintentional measurement errors in historical earnings. The less errors that are not indicative of the firm underlying performance, the more accurately the analysts predict the future earnings. Thus analysts' forecasts are likely to be more accurate and less dispersed when financial reporting quality is high.

Analyst forecast dispersion (AFD) is computed as the standard deviation of analyst forecasts eight months prior to the fiscal year-end of M&A (Barron, Kim, Lim, and Stevens 1998). AFD is deflated by previous year end-of-period stock price. LFRQ is increasing in analyst forecast dispersion.

Low Financial Reporting Quality

I use these four proxies for financial reporting quality in constructing low financial reporting quality score (LFRQ). For each measurement, the director-interlocked firm is ranked based on the industry-year. The ranking is scaled by the total observations in the industry-year. LFRQ is the sum of the ranking of |ACC|, OBSL, |UAF| and AFD divided by the number of financial reporting quality proxies with nonmissing data. If firms do not have all four proxies of financial reporting quality available to calculate LFRQ, LFRQ will be calculated based on the available proxies of financial reporting quality. By doing so, I can obtain the most comprehensive sample possible.

As a combination of four proxies, LFRQ is more comprehensive and representative than a single dimension of financial reporting quality. Consequently, LFRQ enhances both internal and external validity of my findings.

IV. Research Design and Empirical Results

Sample

My sample originates from the RiskMetrics which provides annual details on the board snapshots of the firms that comprise the S&P 1500 index from 2007 to 2012. I obtain merger and acquisition data from the SDC platinum Mergers & Acquisitions Database and include all deals completed between 2008 and 2011 because the sample requires the directors' data one year before and one year after M&A and my directors' data is from 2007 to 2012. The sample excludes share repurchases, recapitalizations and takeover bids that were withdrawn or not completed. I require that all deals are

above 10 million and the acquirers control more than 50 percent of targets' outstanding shares after acquisitions (Hsieh and Walking 2005). I also require the target firms to be public firms so that I can obtain the data necessary to construct the LFRQ. These restrictions result in 509 M&A deals. Then I identify the shocked directors of the 509 M&A deals from RiskMetrics. But because RiskMetircs only provides directors data of firms that comprise the S&P 1500 index, this procedure restricts my sample to 106 of 507 M&A deals of which targets are in the S&P 1500 pool. All these target firms have 958 shocked directors in total but most of them do not hold multiple directorships one year prior to M&A. Among these 958 directors, only 283 of them serve on other boards one year prior to M&A. Also, firms whose directors lose directorships due to other reasons are excluded from my sample. I require these shocked directors to serve on the same director-interlocked firms through three years from one year before M&A to one year after M&A and not to take additional directorships after M&A. These data requirements intend to identify the director-interlocked firms whose directors' workload is only affected by M&A but not other events. These requirements limit the shocked directors to 137. The 137 directors serve on 166 directors-interlocked firms. These director-interlocked firms comprise the treatment group. All firm-level financial characteristics come from Compustat. Excluding 49 firms without sufficient financial data in Compustat, the final sample includes 117 director-interlocked firms from 2007 to 2012 whose directors experience a decrease in multiple directorships due to M&A. My sample selection procedure is summarized in Table 1.

[INSERT TABLE 1 HERE]

Methodology

In this section, a differences-in-differences research design is employed to more precisely examine the effect of multiple directorships on firm performance and financial reporting quality. The endogeneity issues mentioned above lead to mixed evidence on the effect of multiple directorships on firm performance in previous studies. And the analysis in Section I has shown why M&A can be treated as an exogenous shock to provide a good opportunity to examine effect of multiple directorships on firm performance. Therefore, exogenous variations in directors' time and energy generated by M&A enable me to use the differences-in-differences research design to revisit the effect of multiple directorships on firm performance and financial reporting quality.

The treatment group consists of the director-interlocked firms, whose directors experience decrease in directorships only due to M&A. The control group is composed of the firms whose directors don't experience the decrease in directorships due to M&A and matches the treatment group based on the year, industry (two-digit SIC code) and size (total assets). By doing so, I hope that the control group can be representative of what would have happened in the treatment group without M&A. The first order difference is taken to compare the firm performance and financial reporting quality between treatment group and control group in both pre-M&A and post-M&A period. The first order difference rules out the possibility that the effect of multiple directorships on firm performance and financial reporting quality is driven

by directors' busyness or capacity. The second order difference intends to take difference of the first difference and difference out the time trend. Sharma and Iselin (2012) also use a natural experiment, SOX, to examine the relationship between multiple-directorships and financial misstatements. But a major limitation of this study is that SOX is applied to all firms at the same time, which means that their control group will be also affected by SOX. This makes it difficult to difference out the effect of multiple directorships on financial reporting quality caused by the directors' busyness or capacity. It is also challenging for them to identify and distinguish the effect of the regulation from other contemporaneous changes that might have occurred. In turn, all these limitations make their casual inferences about the effects of multiple directorships vulnerable. But this kind of concerns is mitigated in my M&A settings because only the treatment group will be affected by M&A. Besides, my sample only includes firms whose directors experience a decrease in multiple directorships just due to M&A. Firms whose directors lose directorships due to other reasons are excluded from my sample. Also, I require these shocked directors to serve on the same director-interlocked firms through three years from one year before M&A to one year after M&A and not to take additional directorships after M&A. These data requirements intend to identify the director-interlocked firms whose directors' workload is only affected by M&A but not other events.

I use the following OLS regressions to test my hypotheses:

$$MB = \alpha_0 + \alpha_1 POST + \alpha_2 MA + \alpha_3 POST*MA + \alpha_4 SIZE + \alpha_5 LEV + \alpha_6 GROWTH + \alpha_7 ROA + \alpha_8 LOSS + \alpha_9 \sigma CFO + \alpha_{10} CEO + \alpha_{11} CHAIR + \alpha_{12} Year\ dummies + \alpha_{13} Industry\ dummies + \varepsilon \quad (1)$$

$$LFRQ = \alpha_0 + \alpha_1 POST + \alpha_2 MA + \alpha_3 POST*MA + \alpha_4 SIZE + \alpha_5 LEV + \alpha_6 GROWTH + \alpha_7 ROA + \alpha_8 LOSS + \alpha_9 \sigma CFO + \alpha_{10} CFO + \alpha_{11} Year\ dummies + \alpha_{12} Industry\ dummies + \varepsilon \quad (2)$$

Model 1 and model 2 are both run in full sample to test hypothesis 1 and hypothesis 2, respectively. When model 2 is run in audit committee subsample and busy board subsample, it tests hypothesis 3 and hypothesis 4, respectively. Because prior studies show that firm-specific operating characteristics affect the firms' financial reporting quality (Dechow et al. 1995; Becker et al.1998; Dechow and Divhev 2002; Francis et al. 2005), firm characteristics are also controlled. Detailed variable definitions are in Appendix A.

Descriptive Statistics and Univariate Analyses

Table 2 presents summary for shocked directors' multiple directorships. In the full sample, these shocked directors' average directorships are 2.23 and 81 percent of them hold 2 directorships and 19 percent of them hold 3 directorships. In the audit committee subsample in which all shocked directors serve on the audit committee of the director-interlocked firms, shocked directors' average directorships are 2.18 and 84 percent of them hold 2 directorships and 16 percent of them hold 3 directorships. In the busy board subsample in which at least half of all independent directors serve on at least three boards, shocked directors' average directorships are 2.04 and 96

percent of them hold 2 directorships and only 4 percent of them hold 3 directorships.

[INSERT TABLE 2 HERE]

Table 3 reports descriptive statistics of director-interlocked firms and control firms in the pre- and post-M&A period for the full sample, audit committee subsample and busy board subsample. Tests of differences in the mean and differences-in differences are also presented. Panel A shows the descriptive statistics for the full sample. In the pre-M&A period, the mean (medians) of *MB* and *LFRQ* are 2.54(2.25) and 0.43(0.41) for director-interlocked firms, and 2.29(1.84) and 0.44 (0.40) for control firms, respectively. Both the first order difference of MB and LFRQ are not significant in the pre-M&A period. In the post-M&A period, the mean (medians) of *MB* and *LFRQ* are 2.49 (2.05) and 0.4 (0.36) for director-interlocked firms, and 1.85 (1.74) and 0.46 (0.43) for control firms, respectively. The mean value of *MB* for director-interlocked firms is significantly higher than that of control firms and the mean value of *LFRQ* for director-interlocked firms is significantly lower than that of control firms in the post-M&A period. Relative to mean difference in pre-M&A period, mean difference of MB in post-M&A period is 0.39 higher, indicating that director-interlocked firm performance becomes better after their directors' directorships decrease. And relative to the mean difference of *LFRQ* in pre-M&A period, mean difference of *LFRQ* in post-M&A period is 0.05 lower. This lower differences-in-differences suggests that the financial reporting quality of the director-interlocked firms is improved after their directors experience decrease in the directorships due to M&A. The mean and median values of ROA are higher for

director-interlocked firms than that for control firms in both pre-M&A and post-M&A period. In the pre-M&A period, the mean (medians) of *σCFO* are 1017.49(135.04) for director-interlocked firms, and 817.83(130.23) for control firms, respectively. In the post-M&A period, the mean (medians) of *σCFO* are 1505.59(140.12) for director-interlocked firms, and 1343.47(143.31) for control firms, respectively. Except *ROA* and *σCFO*, financial characteristics (*SIZE, LEV, ROE, GROWTH, ROA, and LOSS*) are generally similar between director-interlocked firms and control firms. In the pre-M&A period, most of the difference between director-interlocked firms and control firms are insignificant, indicating that control firms can be a good representative of what would have happened in the director-interlocked firms without M&A.

Panel B reports the descriptive statistics for the audit committee subsample in which shocked directors are the audit committee members of the interlocked-firms. In the pre-M&A period, except SIZE, *ROA* and *σCFO* , all the other variables are generally similar between director-interlocked firms and control firms, indicating control firms are a good representative of what would happened in the director-interlocked firms without M&A. In the post-M&A period, mean (median) of LFRQ are 0.39 (0.36) for director-interlocked firms and 0.48 (0.43) for the control firms, respectively. LFRQ of director-interlocked is 0.09 lower than that of control firms. The difference-in-difference is also significantly negative and the magnitude in the audit committee subsample is smaller than that in the full sample. These results suggest that audit committee directors' multiple directorships have a more negative

effect on financial reporting quality. All differences-in-differences of the financial characteristic variables are not significantly different in the post-M&A period.

Panel C present the descriptive statistic for busy board subsample.The results are similar to those in Panel B. The pre-M&A results show that control firms are a good representative of what would have happened in director-interlocked firms. In the post-M&A period, difference-in-difference of LFRQ is significantly negative and smaller than that in full sample, indicating that busy board directors' multiple directorships will result in a worse financial reporting quality than other directors do.

In sum, the descriptive statistics show that the results are generally consistent with my hypotheses.

[INSERT TABLE 3 HERE]

Table 4 reports correlation statistics. The correlation analyses show that most of the correlations are less than 0.4, which is considerably less than the 0.8 threshold which will lead to multicollinearity (Gujarati 2003). I also calculate the Variance Inflation Factor （VIF） for variable pairs with a correlation coefficient higher than 0.4 to detect multicollinearity issue. I find that none of VIF is greater than 10, the threshold beyond which multicollinearity may be a concern. As expected, many variables are highly correlated, such as LFRQ and MA, and MB and MA.

[INSERT TABLE 4 HERE]

Multivariate Results

In this part, I examine whether the univariate results reported in Table 3 are robust to a multivariate regression analysis where the financial characteristic, industry fixed

effect and year fixed effect are controlled. Table 5 reports the regression results for hypothesis 1 to hypothesis 4. *POST*MA* is the variable of interest and its coefficient represents the differences-in-differences estimate of the effect of multiple directorships on firm performance or financial reporting quality. Regression in column 1 test hypothesis1 and the result shows that coefficient on *POST*MA* is 0.526 and the two-tailed p-value is 0.046, indicating that the director-interlocked firms have a better firm performance after their directors experience a decrease in multiple directorships due to M&A than what these director-interlocked firms would have experienced, had their directors not experienced decrease in multiple directorships. Column 2 shows the results of hypothesis 2. The coefficient on *POST*MA* is -0.057 and the two-tailed p-value is 0.034. This significantly negative coefficient on *POST*MA* indicates that the financial reporting quality of the director-interlocked firms is improved after their directors experience decrease in multiple directorships due to M&A relative to what these director-interlocked firms would have experienced , had their directors not experienced decrease in multiple directorships. Hypothesis 3 and hypothesis 4 are the cross-sectional hypotheses which examine whether the effect of multiple directorships on financial reporting quality are more pronounced when the shocked directors are audit committee members or when the boards of the director-interlocked firms are busy. In column 3, the coefficient on *POST*MA* is also negative and significant. But the coefficient on *POST*MA* in column 3 is smaller than that in column 2, which confirms my third hypothesis that the decrease in audit committee director's multiple directorships will lead to a higher increase in the

financial reporting quality than that of directors on other committees will. Similar to hypothesis 3, the negative and significant coefficient on *POST*MA* in column 4 is smaller than that in column 2 and even smaller than that in column 3, indicating that the effect of multiple directorships is more manifested when a board is busy[3].

Taken together, the results in Table 5 offer more evidence to support the univariate results in Table 3 and suggest that multiple directorships have non-trivial effects on firm performance and financial reporting quality. Shocked directors who experience a decrease in multiple directorships due to M&A can assign more time and energy on the director-interlocked firms and thus enhance the monitoring effectiveness. Therefore, the firm performance and financial reporting quality of the director-interlocked firms are improved in the post-M&A period. Also, the effect of *multiple directorships on financial reporting quality is more pronounced when the* shocked directors are audit committee members or when the boards of the director-interlocked firms are busy.

[INSERT TABLE 5 HERE]

V. Additional Tests

Model Specification

In this part, I use joint regressions with interactive terms. When the same model is used in full sample and audit committee subsample to test hypothesis 3, the assumption is that all controls have different effects for full sample and audit committee subsample. Since it might not be in this case, I add the interactive term of

[3] Hypothesis 3 and Hypothesis 4 are both one side hypothesis but the t-test is two-tail. Therefore, the t-test power of hypothesis 3 and hypothesis 4 is stronger than it should be.

*POST*MA*AUDIT* in the model to see whether only the effect of multiple directorships on financial reporting quality is different between full sample and subsample with director-interlocked firms whose shocked directors sit on their audit committees. Similarly, the interactive term of *POST*MA*BUSYBOARD* is added to examine hypothesis 4. The following models are used to test hypothesis 3 and hypothesis 4.

$$LFRQ = \alpha_0 + \alpha_1 POST + \alpha_2 MA + \alpha_3 AUDITCOMMITTEE + \alpha_4 POST*AUDIT + \alpha_5 MA*AUDIT + \alpha_6 POST*MA*AUDIT + \alpha_7 SIZE + \alpha_8 Lev + \alpha_9 Growth + \alpha_{10} ROA + \alpha_{11} LOSS + \alpha_{12} \sigma CFO + \alpha_{13} CFO + \alpha_{14} Year\ dummies + {}_{15} Industry\ dummies + \varepsilon \quad (3)$$

$$LFRQ = \alpha_0 + \alpha_1 POST + \alpha_2 MA + \alpha_3 BUSYBOARD + \alpha_4 POST*BUSYBOARD + \alpha_5 MA*BUSYBOARD + \alpha_6 POST*MA*BUSYBOARD + \alpha_7 SIZE + \alpha_8 Lev + \alpha_9 Growth + \alpha_{10} ROA + \alpha_{11} LOSS + \alpha_{12} \sigma CFO + \alpha_{13} CFO + \alpha_{14} Year\ dummies + {}_{15} Industry\ dummies + \varepsilon \quad (4)$$

Column 1 of Table 6 shows the results of hypothesis3 using model 3. As expected, the coefficient on *POST*MA*AUDIT* is still significant and negative, indicating that the decrease in the directors' multiple directorships leads to greater increase in financial reporting quality for audit committee subsample than for full sample. Column 2 of Table 6 reports the results of hypothesis 4 using model 4. I find that the coefficient on *POST*MA*BUSYBOARD* is also significant and negative based on one-tail test. The result suggests that the effect of multiple directorships on financial reporting quality is greater when the board of the director-interlocked firms is busy.

[INSERT TABLE 6 HERE]

Low Financial Reporting Quality Measure (LFRQ)

In this sensitivity test, I take the variables constructing LFRQ in the pre-M&A period but determine their rank using the data from the post-M&A period. LFRQ is constructed by taking the sum of the rank of |ACC|, OBSL, |UAF| and AFD divided by the number of financial reporting quality proxies with nonmissing data. Since the rank of each measure is based on the industry-year, one concern about LFRQ might be that the total observations in the industry-year used to obtain the ranks are changing. Thus, I reconstruct LFRQ by taking the measures in the pre-M&A period but determining their rank using the data from the post-M&A period.

Table 7 shows the results of effect of multiple directorships on financial reporting quality by using the new LFRQ. Result of regression in column 1 shows that the coefficient on *POST*MA* is significant and negative, which is still consistent with the result in column 1 of Table 5 that the decrease in director's multiple-directorships will increase the financial reporting quality. Column 2 reports the result for hypothesis 3. The coefficient on *POST*MA*AUDIT* is significant and negative, indicating that decrease in audit committee director's multiple directorships will lead to increase in the financial reporting quality. Column 3 reports the result for hypothesis 4. The coefficient on *POST*MA*BUSYBOARD* is negative but insignificant. In sum, most of the results in Table 7 provide the evidence that results in Table 5 are not driven by the change in observations in the industry-year.

[INSERT TABLE 7 HERE]

VI. Conclusion

This paper exploits variations in directorships due to merges and acquisitions to examine the effect of multiple directorships on firm performance and financial reporting quality. Because of the endogeneity of the number of directorships and self-selection bias, prior literature shows mixed results. While a stream of literature shows that serving on multiple boards can benefit firms (Masulis and Mobbs 2011; Field et al. 2013), directors with multiple directorships have been also widely criticized to be too busy to perform their monitoring duties (Core et al. 1999; Shivdasani and Yermack 1999; Loderer and Peyer 2002; Fich and Shivadasani 2006). As an exogenous shock, M&A terminates entire boards of targets and provides a good opportunity to solve the endogeneity of the number of directorships.

By employing differences-in-differences method, I find both statistically and economically significant effects of multiple directorships on firm performance and financial reporting quality. Specifically, I find that the decrease in director's multiple directorships will increase the firm performance and financial reporting quality. I also find that the effect of multiple directorships on financial reporting quality is more pronounced when the shocked directors are the audit committee member of director-interlocked firms or on a busy board. Overall, there results provide evidence that the multiple directorships are detrimental to firm performance and financial reporting quality.

My study is subject to the following caveats. First, M&A is a specific setting so that it would restrict the generalization of my findings. Second, I attempt to control

for extraneous effects by using a matching procedure and by including relevant control variables; however, my results may be affected by correlated omitted variables.

Reference

Abarbanell, J. S., and B. J. Bushee. 1997. Fundamental Analysis, future earnings, and stock prices. *Journal of Accounting Research* 35(1) :1-24.

Abbott, L. J., S. Parker, and G. F. Peters. 2004. Audit committee characteristics and restatements. *Auditing:A Journal of Practice & Theory* 23 (1): 69-87.

Andres, C., I. V. D. Bongard, And M. Lehmann. 2013. Is Busy Really Busy? Board Governance Revisited. *Journal of Business Finance & Accounting* 40(9)&(10): 1221-1246.

Barron, O. E., O. Kim, S. C. Lim, and D. E. Stevens. 1998. Using analysts' forecasts to measure properties of analysts' information environment. *The Accounting Review* 73 (4): 421-33.

Barth, M. E. 1991. Relative measurement errors among alternative pension asset and liability measures. *The Accounting Review* 66 (3): 433-63.

Becker, C. L., M. L. DeFond, J. Jiambalvo, and K. R. Subramanyam. 1998. The effect of audit quality on earnings management. *Contemporary Accounting Research* 15 (1): 1-24.

Carcello, J.V., and T. L. Neal. 2003. Audit Committee Characteristics and Auditor Dismissals Following "New" Going-Concern Reports. *The Accounting Review* 78:95-117.

Carpenter, M. A., and J. D. Westphal. 2001. The strategic context of external network ties: Examining the impact of director appointments on board involvement in strategic decision making. *Academy of Management Journal* 44 (4): 639-660.

Core, J.E., R. W. Holthausen, and D. F. Larcker.1999. Corporate governance, chief executive officer compensation, and firm performance. *Journal of Financial Economics* 51:371-406.

Dechow, P. M., and I. D. Dichev. 2002. The quality of accruals and earnings: The role of accrual estimation errors. *The Accounting Review* 77 (4): 35-68.

Dechow, P. M., R. G. Sloan, and A. P. Sweeney. 1995. Detecting earnings management. *The Accounting Review* 70 (2): 193-225.

Dechow, P., R. G. Sloan, and A. Sweeney. 1996. Causes and consequences of earnings manipulation. *Contemporary Accounting Research* 13: 1-36

Engel, E., R. M. Hayes, X. Wang. 2010. Audit committee compensation and the demand for monitoring of the financial reporting process. *Journal of Accounting and Economics* 49: 136-154.

Fama, E. F., and M. C. Jensen. 1983. Separation of ownership and control. *Journal of Law and Economics* 26(2):301-325.

Ferris, S. P., M. Jagannathan, and A. C. Pritchard. 2003. Too busy to mind the business? Monitoring by directors with multiple board appointments. *The Journal of Finance* 58(3):1087-1111.

Fich, E. M., and A. Shivdasani. 2006. Are busy boards effective monitors? *The Journal of Finance* 61(2):689-724.

Field, L., M. Lowry, and A. Mkrtchy. 2013. Are busy boards detrimental? *Journal of*

*Financial Economics*109:63-82.

Francis, J., R. LaFond, P. Olsson, and K. Schipper. 2005. The market pricing of accruals quality. *Journal of Accounting and Economics* 39 (2): 295-327.

Francis, J., D. Philbrick, and K. Schipper. 1994. Shareholder litigation and corporate disclosures. *Journal of Accounting Research*.32(2):137-164.

Geletkanycz, M., and B. Boyd. 2011. CEO outside directorships and firm performance: a reconciliation of agency and embeddedness views. *Academy of Management Journal 54(2):335-352.*

Gujarati, D. N. 2003.Basic Ecomometrics. New York, NY: McGraw-Hill.

Helland, E. 2006. Reputational penalties and the merits of class-action securities litigation. *Journal of Law and Economics* 49(2): 365-395.

Hennes, K. M., A. J. Leone, and B. P. Miller. 2010. Accounting restatements and auditor accountability. The University of Miami. Working paper.

Hribar, P., T. Kravet, and R. Wilson. 2013. A new measure of accounting quality. *Review Accounting Study*.19:506-538.

Hsieh, J., and R. A. Walkling. 2005. Determinants and implications of arbitrage holdings in acquisitions. *Journal of Financial Economics* 77 (3): 605-48.

Hunton, J.E., J. M. Rose. 2008. Can directors' self-interests influence accounting choices? *Accounting, Organizations and Society* 33:783-800.

Institutional Shareholder Service, 2013.
http://www.issgovernance.com/file/files/ISSGovernanceQuickScoreTechDoc.pdf

Jones, J. J. 1991. Earnings management during import relief investigations. *Journal of Accounting Research* 29: 193-228.

Kim, K., E. Mauldin , and S. Patro. 2014. Outside directors and board advising and monitoring performance. *Journal of Accounting and Economics* 57:110-131.

Kothari, S. P., A. J. Leone, and C. E. Wasley.2005. Performance matched discretionary accrual measures. *Journal of Accounting and Economics* 39:163-197.

Loderer, C., and U. Peyer. 2002. Board overlap, seat accumulation and share prices. *European Financial Management* 8(2):165-192.

Masulis, R. W., and S. Mobbs. 2011. Are all inside directors the same? Evidence from the external directorship market. *The Journal of Finance* LXVI(3):823-871.

Masulis, R.W., C. Wang, and F Xie .2012. Globalizing the boardroom-The effects of foreign directors on corporate governance and firm performance. *Journal of Accounting and Economics* 53: 527-554.

Palmrose, Z. V. 1987. An analysis of auditor litigation and audit service quality. *The Accounting Review* 63(1): 55-73.

Sharma, V. D., V. Naiker , and B. Lee.2009. Determinants of audit committee meeting frequency:evidence from a voluntary governance system. *Accounting Horizons* 23(3):245-263.

Sharma, V. D., and E. R. Iselin. 2012. The association between audit committee multiple-directorships, tenure, and financial misstatements. *Auditing: A Journal of Practice &Theory* 31(3):149-175.

Shivdasani, A., and D. Yermack. 1999. CEO involvement in the selection of new board members: an empirical analysis. *The Journal of Finance* 54(5):1829-1853.

Skaife, H. A., and D. D. Wangerin. 2013. Target financial reporting quality and M&A deals that go bust. *Contemporary Accounting Research* 30:719-749.

Spencer Stuart U.S. board index, 2013.
https://www.spencerstuart.cn/research-and-insight/spencer-stuart-us-board-index-2013

Srinivasan, S. 2005**.** Consequences of financial reporting failure for outside directors: evidence from accounting restatements and audit committee members. *Journal of Accounting Research* 43(2):291-334.

Teoh, S. H., I. Welch, and T. J.Wong. 1998. Earnings Management and the Long-Run Market Performance of Initial Public Offerings. The Journal of Finance LIII(6):1935-1974.

Thompson, J., and T. McCoy. 2008. An analysis of restatements due to errors and auditor changes by fortune 500 companies.*Journal of Legal, Ethical and Regulatory Issues* 11(2) :45-57.

Yang, J. S., and J. Krishnan. 2005. Audit committees and quarterly earnings management. *International Journal of Auditing* 9:201-219.

Appendix A

Variable Definitions

MB	Ratio of the director-interlocked firm's market value to book value of common equity.
LFRQ	Low financial reporting quality score measured as the average of industry-year rank of of |ACC|, OBSL, |UAF| and AFD .Calculations of the four measures are in Appendix B.
MA	Dummy variable that equals to one if a firm has directors who experience decrease in multiple directorships because M&A terminates the boards on which they serve, zero otherwise.
POST	Dummy variable that equals to one if a firm-year is one year after M&A lead to the decrease in director's multiple directorships, zero otherwise.
AUDIT	Dummy variable that equals to one if a shocked director is the audit committee member of the director-interlocked firm, zero otherwise.
BUSYBOARD	Dummy variable that equals to one if a director-interlocked firm has a busy board in which more than 50% of the directors holding three or more directorships, zero otherwise.
SIZE	The natural log of the total assets.
LEV	Long-term debt scaled by book value of common equity.
ROE	Income before extraordinary items divided by book value of common equity.
GROWTH	Average sales growth rate in director-interlocked firm over the previous three years.
ROA	Operating income before depreciation divided by assets.
LOSS	Dummy variable that equals one if a firm reports at least one negative income before extraordinary items and discontinued operations over the three years prior to the M&A, zero otherwise.
σCFO	The standard deviation of net cash flows from operations of the director-interlocked firm over five years prior to the M&A, zero otherwise.
CEO	Dummy variable that equals to one if a shocked directors it the CEO of the director-interlocked firm, zero otherwise.
CFO	Dummy variable that equals to one if a shocked directors it the CFO of the director-interlocked firm, zero otherwise.
CHAIR	Dummy variable that equals to one if a shocked directors it the chairman of the board of the director-interlocked firm, zero otherwise.

Appendix B

Low financial reporting quality (LFRQ) score

Panel A: Financial reporting quality measures

|ACC|

Following Teoh, Welch, and Wong(1998) , I use a modified cross-sectional Jones (1991) model to calculate the magnitude of discretionary total accruals. In essence, total accruals are regressed on the change in sales minus the change in accounts receivable, and net property, plant, and equipment in each industry-year. And all variables are scaled by lagged firm assets. The absolute value of the residual from the regression is the magnitude of the discretionary total accruals. LFRQ score is positively correlated with the magnitude of discretionary total accruals.

$$\frac{TA_{i,t}}{ASSETS_{i,t-1}} = \beta_0 + \beta_1\left(\frac{1}{ASSETS_{i,t-1}}\right) + \beta_2\left(\frac{\Delta SALES_{i,t} - \Delta AR_{i,t}}{ASSETS_{i,t-1}}\right) + \beta_3\left(\frac{PPE_{i,t}}{ASSETS_{i,t-1}}\right) + \varepsilon_{i,t},$$

where TA represents total accruals; ASSETS is total assets; ∆SALES is the change in sales; ∆AR is the accounts receivable; and PPE is net property ,plant , and equipment.

OBSL

Based on Barth (1991), off-balance-sheet liabilities is calculated as the residual from a cross-sectional regression of stock prices on assets and liabilities based on industry-year. Negative residuals reflect off-balance-sheet net liabilities and are transformed by taking the absolute value. Positive residuals are set equal to zero. In this way, OBSL is negatively correlated with financial reporting quality but positively associated with LFRQ.

$$\text{PRC} = \beta_0 + \beta_1 ASSET + \beta_2 LIAB + \varepsilon,$$

where PRC is the stock price at fiscal year-end; ASSET is total assets per common share outstanding; and LIAB is the total liability per common share outstanding .

|UAF|

Hribar, Kravet and Wilson (2013) use a regression-based approach to remove the expected amount of audit fees based on the determinants of the audit that are unlikely to capture accounting quality. Following their approach, I isolate the unexpected audit fees from the total audit fees. Absolute value of the unexpected audit fees (|UAF|) is used as the third proxy for financial reporting quality and also the third component of LFRQ. UAF positively correlates with LFRQ.

$$\text{LN(AUDIT FEE)}_{i,t} = \beta_0 + \beta_1 BIG4_{i,t} + \beta_2 LN(ASSETS)_{i,t} + \beta_3 BUS\ SEG_{i,t} + \beta_4 FGN_{i,t} + \beta_5 INV_{i,t} + \beta_6 REC_{i,t} + \beta_7 CR_{i,t} + \beta_8 BTM_{i,t} + \beta_9 LEV_{i,t} + \beta_{10} EMPLS_{i,t} + \beta_{11} MERGER_{i,t} + \beta_{12} DEC\_YE_{i,t} + \beta_{13} ROA_{i,t} + \beta_{14} LOSS_{i,t} + \beta_{15} AUD\ OPIN_{i,t} + \beta_{16} CLIENT_{i,t} + \beta_{17} IPO_{i,t} + \beta_{18} LITRISK_{i,t} + \beta_{19} IND_{i,t} + \varepsilon_{i,t},$$

where

LN(AUDIT FEE) = log of audit fee; BIG4 = one if the firm's auditor is a member of Big4 and zero otherwise; LN(ASSET) = log of total assets; BUS SEG = square root of the number of business segments of the firm; FGN = ratio of foreign sales scaled by lagged total assets; INV = inventory scaled by lagged total assets; REC = receivables scaled by lagged total assets; CR = current assets divided by current liabilities; BTM = book value of equity divided by market value of equity; LEV = sum of short-term

debt and long-term debt scaled by lagged total asset; EMPLS = square root of the number of employees (measure in thousands); MERGER = one if firm is engaged in a merge or acquisition and zero otherwise; DEC_YE = one if the fiscal year-end does not end in December and zero otherwise; ROA = operating income after depreciation scaled by lagged total assets; LOSS = one if income before extraordinary items and discontinued operations is negative in the current or two previous years and zero otherwise; AUD OPIN = one if the firm receives a modified audit opinion and zero otherwise; CLIENT = square root of the number of years that the firm has been a client of their current auditor; IPO = one if in the year of the initial public offering and zero otherwise; LITRISK = one for high litigation risk industries and zero otherwise, as defined in Francis et al.(1994); IND = industry fixed effects based on two digit SIC codes.

AFD

AFD denotes analyst forecast dispersion, which is computed as the standard deviation of analyst forecasts eight months prior to the fiscal year-end of M&A (Barron, Kim, Lim, and Stevens 1998). AFD is deflated by previous year end-of-period stock price. LFRQ is increasing in AFD.

LFRQ

I use these four proxies for financial reporting quality in constructing low financial reporting quality score (LFRQ). For each measurement, the director-interlocked firm is ranked based on the industry-year. The ranking is scaled by the total observations in the industry-year. LFRQ is the sum of the ranking of |ACC|,OBSL,|UAF| and AFD

divided by the number of financial reporting quality proxies with nonmissing data.

Panel B: Descriptive statistics on financial reporting quality measures				
Financial reporting quality measure	N	Mean	Median	SD
|ACC|	422	0.07	0.05	0.06
OBSL	468	1.54	0.00	4.18
|UAF|	118	3.86	3.83	1.33
AFD	338	0.01	0.00	0.03

TABLE 1

Summary of Sample Selection

Target firms between period January 1, 2008 to December 31, 2011	509
Less: Target firms whose directors data are unavailable in RiskMetrics	403
Target firms sample size	106
Directors serving on the targets' boards one year prior to M&A	958
Less: Directors without multiple directorships	675
Less: Directors whose directorship increase or decrease due to other reasons through three years from one year before M&A to one year after M&A	283
Shocked directors	137
Shocked directors-interlocked firms	166
Less: Firms without financial data in Compustat	49
Total sample size	117

TABLE 2
Multiple Directorships

Full Sample	
Average directorships	2.23
Total number of directorships held	% of directors
2 directorships	81
3 directorships	19
Audit Committee Subsample	
Average directorships	2.18
Total number of directorships held	% of directors
2 directorships	84
3 directorships	16
Busy Board Subsample	
Average directorships	2.04
Total number of directorships held	% of directors
2 directorships	96
3 directorships	4

TABLE 3

Summary Statistics

Panel A: Full Sample

Variables	Pre-M&A(n=117)					Post-M&A(n=117)					
	Director-Interlocked Firms		Control Firms		Diff	Director-Interlocked Firms		Control Firms		Diff	Diff-in-Diff
	Mean (Median)	Min (Max)	Mean (Median)	Min (Max)		Mean (Median)	Min (Max)	Mean (Median)	Min (Max)		
MB	2.54 (2.25)	0.25 (11.53)	2.29 (1.84)	-2.34 (13.68)	0.25	2.49 (2.05)	0.28 (13.68)	1.85 (1.74)	-10.54 (9.2)	0.64***	0.39*
LFRQ	0.43 (0.41)	0.15 (0.93)	0.44 (0.40)	0.17 (0.93)	-0.01	0.40 (0.36)	0.12 (0.86)	0.46 (0.43)	0.12 (0.88)	-0.06***	-0.05**
SIZE	8.72 (8.50)	4.86 (14.61)	8.70 (8.38)	4.86 (14.61)	0.02	8.85 (8.54)	4.89 (14.57)	8.82 (8.62)	4.86 (14.57)	0.03	0.01
LEV	0.77 (0.44)	0.00 (13.69)	0.74 (0.41)	-7.72 (17.61)	0.03	0.62 (0.42)	0.00 (5.41)	0.53 (0.39)	-9.81 (17.61)	0.09	0.06
ROE	0.10 (0.13)	-0.86 (1.55)	0.08 (0.11)	-0.86 (1.55)	0.02	0.13 (0.13)	-0.73 (0.74)	0.10 (0.11)	-0.70 (0.81)	0.03	0.01
GROWTH	0.10 (0.10)	-0.15 (0.62)	0.12 (0.10)	-0.14 (0.58)	-0.02	0.04 (0.04)	-0.14 (0.47)	0.06 (0.04)	-0.13 (0.62)	-0.02	0.00
ROA	0.13 (0.13)	-0.21 (0.38)	0.11 (0.12)	-0.21 (0.29)	0.02*	0.13 (0.14)	-0.11 (0.38)	0.12 (0.13)	0.00 (0.31)	0.01*	-0.01
LOSS	0.20 (0.00)	0.00 (1.00)	0.25 (0.00)	0.00 (1.00)	-0.05	0.26 (0.00)	0.00 (1.00)	0.26 (0.00)	0.00 (1.00)	0.00	0.05
σCFO	1017.49 (135.04)	5.10 (21986.83)	817.83 (130.23)	4.42 (21986.83)	199.66***	1505.59 (140.12)	2.85 (61853.41)	1343.47 (143.31)	2.85 (61853.41)	162.12**	-37.54

TABLE 3 (continued)

Panel B:Audit Committee Subsample

Variables	Pre-M&A(n=58)					Post-M&A(n=58)					
	Director-Interlocked Firms		Control Firms		Diff	Director-Interlocked Firms		Control Firms		Diff	Diff-in-Diff
	Mean (Median)	Min (Max)	Mean (Median)	Min (Max)		Mean (Median)	Min (Max)	Mean (Median)	Min (Max)		
LFRQ	0.43 (0.41)	0.17 (0.98)	0.45 (0.41)	0.17 (0.89)	-0.02	0.39 (0.36)	0.11 (0.7)	0.48 (0.43)	0.87 (0.20)	-0.09***	-0.07**
SIZE	8.59 (8.48)	4.95 (14.48)	8.56 (8.31)	4.94 (13.72)	0.03*	8.74 (8.41)	5.14 (14.46)	8.65 (8.51)	4.47 (14.46)	0.09***	0.06*
LEV	1.15 (0.44)	0.00 (16.05)	5.93 (0.46)	-11.92 (329.42)	-4.78	0.68 (0.38)	0.00 (5.41)	-1.20 (0.37)	-92.91 (5.41)	1.88	6.66
ROE	0.20 (0.14)	-0.76 (6.51)	0.65 (0.11)	-0.86 (33.74)	-0.45	0.14 (0.13)	-0.78 (0.74)	-0.07 (0.11)	-8.86 (0.35)	0.21*	0.66
GROWTH	0.11 (0.11)	-0.07 (0.43)	0.10 (0.09)	-0.13 (0.55)	0.01	0.04 (0.06)	-0.10 (0.24)	0.03 (0.03)	-0.20 (0.40)	0.01	0.00
ROA	0.14 (0.13)	-0.01 (0.44)	0.12 (0.12)	-0.21 (0.60)	0.02**	0.15 (0.14)	0.01 (0.62)	0.14 (0.14)	-0.01 (0.43)	0.01*	-0.01
LOSS	0.17 (0.00)	0.00 (1.00)	0.22 (0.00)	0.00 (1.00)	-0.05	0.22 (0.00)	0.00 (1.00)	0.28 (0.00)	0.00 (1.00)	0.06	0.01
σCFO	1539.69 (96.47)	5.1 (37725.54)	1101.38 (111.31)	6.94 (21986.83)	438.31*	1774.35 (110.59)	2.85 (61853.41)	1733.12 (125.56)	1.81 (61853.41)	41.23	-397.08*

TABLE 3 (continued)

Panel C: Busy Board Subsample

Variables	Pre-M&A(n=24)					Post-M&A(n=24)					
	Director-Interlocked Firms		Control Firms		Diff	Director-Interlocked Firms		Control Firms		Diff	Diff-in-Diff
	Mean (Median)	Min (Max)	Mean (Median)	Min (Max)		Mean (Median)	Min (Max)	Mean (Median)	Min (Max)		
LFRQ	0.45 (0.40)	0.17 (0.98)	0.46 (0.46)	0.18 (1.00)	-0.01	0.43 (0.38)	0.18 (0.77)	0.52 (0.47)	0.30 (1.00)	-0.09***	-0.08**
SIZE	9.61 (9.05)	6.67 (14.61)	9.54 (9.04)	6.67 (14.62)	0.07*	9.74 (9.23)	6.62 (14.57)	9.68 (9.08)	6.68 (14.99)	0.06	-0.01
LEV	0.64 (0.47)	0.00 (3.82)	13.39 (0.44)	-11.92 (329.42)	-12.75	0.57 (0.45)	0.00 (1.90)	-4.90 (0.39)	-92.91 (1.47)	5.47*	18.22
ROE	0.01 (0.10)	-0.76 (0.44)	1.52 (0.09)	-0.72 (33.74)	-1.51	0.09 (0.11)	-0.40 (0.34)	-0.31 (0.08)	-8.86 (0.35)	0.40	1.91
GROWTH	0.11 (0.11)	-0.07 (0.43)	0.09 (0.07)	-0.13 (0.29)	0.02	0.02 (0.03)	-0.09 (0.25)	0.03 (0.03)	-0.11 (0.25)	-0.01	-0.03*
ROA	0.12 (0.09)	-0.01 (0.32)	0.10 (0.09)	-0.01 (0.19)	0.02*	0.13 (0.12)	0.00 (0.26)	0.13 (0.14)	-0.01 (0.31)	0.00	-0.02
LOSS	0.29 (0.00)	0.00 (1.00)	0.21 (0.00)	0.00 (1.00)	-0.08	0.29 (0.00)	0.00 (1.00)	0.25 (0.00)	0.00 (1.00)	0.04	0.12
σCFO	3507.12 (200.75)	24.79 (37725.54)	3177 (167.12)	17.62 (29122.91)	330.12	6403.41 (271.27)	26.82 (67933.45)	4696.79 (252.19)	16.88 (61853.41)	1706.62**	1376.50

This table reports descriptive statistics for director-interlocked firms and their control firms in full sample, audit committee subsample and busy board subsample, respectively. Differences-in-differences is given in the last column. Detailed variable definitions are in Appendix A. ***,**,and * denote statistical significance at the 1% ,5% and 10% level, respectively, based on one-tailed t-tests.

TABLE 4

Correlation Matrix (n=468)

	MB	LFRQ	POST	MA	SIZE	LEV	GROWTH	ROA	LOSS	σCFO
MB		**-0.206**	-0.061	**0.109**	**-0.115**	**0.565**	-0.009	**0.377**	**-0.145**	**-0.106**
LFRQ	**-0.388**		0.002	**-0.094**	0.012	-0.024	0.035	**-0.329**	**0.261**	**0.214**
POST	-0.024	-0.004		0.000	0.035	-0.047	**-0.247**	0.052	0.045	0.049
MA	**0.107**	-0.077	0.000		0.007	0.016	-0.066	0.078	-0.035	0.018
SIZE	-0.067	-0.056	0.044	0.006		-0.010	-0.050	0.016	**-0.233**	**0.519**
LEV	**0.243**	-0.036	-0.008	0.017	**0.211**		-0.049	-0.007	-0.034	-0.056
GROWTH	-0.015	-0.017	**-0.292**	-0.043	0.003	-0.070		0.041	**-0.098**	**-0.122**
ROA	**0.570**	**-0.342**	0.043	0.072	0.006	-0.038	0.059		**-0.285**	-0.030
LOSS	**-0.206**	**0.250**	0.045	-0.035	**-0.247**	-0.075	**-0.149**	**-0.283**		0.033
σCFO	-0.001	-0.057	0.042	0.026	**0.874**	**0.174**	-0.027	**0.112**	**-0.173**	

Pearson (Spearman) correlations are reported above (below) the diagonal. **Bold** text indicates correlations are statistically significant at $p<0.05$ None of VIF is greater than 10.

TABLE 5

Multivariate Analysis of the Effect of Multiple Directorships on firm performance and financial reporting quality

	(1)	(2)	(3)	(4)
Dependent Variable	MB (Full Sample)	LFRQ (Full Sampe)	LFRQ (Audit Committee Subsampe)	LFRQ (Busy Board Subsampe)
Variables	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
INTERCEPT	2.475*** (3.51)	0.308*** (4.19)	0.491*** (4.10)	0.219 (1.14)
POST	-0.026 (-0.10)	0.030 (1.12)	0.139*** (3.60)	0.024 (0.41)
MA	-0.029 (-0.15)	0.008 (0.39)	-0.009 (-0.33)	-0.023 (-0.74)
*POST*MA*	0.526** (2.00)	-0.057** (-2.13)	-0.064* (-1.71)	-0.092** (-2.12)
SIZE	-0.088 (-1.46)	-0.003 (-0.42)	-0.013 (-1.36)	0.022 (1.23)
LEV	0.571*** (15.86)	0.001 (0.27)	-0.000 (-1.16)	-0.001* (-1.69)
GROWTH	0.032 (0.05)	0.171** (2.49)	0.133 (1.11)	0.094 (0.45)
ROA	7.760*** (7.66)	-0.583*** (-5.42)	-0.505*** (-4.17)	-0.529** (-2.4)
LOSS	-0.361** (-2.06)	0.072*** (3.91)	0.103*** (3.87)	0.110*** (2.68)
σCFO	0.000 (0.80)	0.000*** (3.46)	0.000 (1.11)	0.000 (1.07)
CEO	0.422 (0.72)			
CHAIR	0.541 (0.77)			
CFO		0.127 (0.81)	0.065 (0.39)	None
Year dummies	Included	Included	Included	Included
Industry dummies	Included	Included	Included	Included
Sample size	468	468	232	92
Adjusted R2	0.534	0.250	0.339	0.720

$$MB=\alpha_0+\alpha_1 POST+\alpha_2 MA+\alpha_3 POST*MA+\alpha_4 SIZE+\alpha_5 LEV+\alpha_6 GROWTH+\alpha_7 ROA+\alpha_8 LOSS+\alpha_9 \sigma CFO+\alpha_{10} CEO+\alpha_{11} CHAIR+\alpha_{12} Yeardummies+\alpha_{13} Industrydummies+\varepsilon \quad (1)$$

$$LFRQ=\alpha_0+\alpha_1 POST+\alpha_2 MA+\alpha_3 POST*MA+\alpha_4 SIZE+\alpha_5 LEV+\alpha_6 GROWTH+\alpha_7 ROA+\alpha_8 LOSS+\alpha_9 \sigma CFO+\alpha_{10} CFO+\alpha_{11} Yeardummies+\alpha_{12} Industrydummies+\varepsilon \quad (2)$$

This table reports OLS estimates on the effect of multiple directorships on firm performance and financial reporting quality. Column (1) to column(4) present the results of hypothesis 1 to hypothesis 4, respectively. Model I is used to test the effect of multiple directorships on firm performance(H1) and Model 2 is used to test the effect of multiple directorships on

financial reporting quality (H2-H4).To test H3, Model II is run in audit committee subsample in which the shocked directors are the audit committee members of director-interlocked firms. To test H4, Model II is run in busy board subsample in which a director-interlocked firm has a busy board in which more than 50% of the directors holding three or more directorships. In all specifications, variation across time is controlled for by including year fixed effects, and variation across industries is controlled for by including industry fixed effects with industry defined by two-digit SIC code (coefficient estimates are suppressed).Detailed variable definitions are in Appendix A. ***,**,and * denote statistical significance at the 1% ,5% and 10% level, respectively, based on one-tailed t-tests.

TABLE 6

Additional Test of Model Specification

Dependent Variable	(1) LFRQ (Audit Committee)	(2) LFRQ (Busy Board)
Variables	Coefficient (t-statistics)	Coefficient (t-statistics)
INTERCEPT	0.314***	0.314***
	(4.23)	(4.27)
POST	-0.003	0.001
	(-0.13)	*(0.05)*
MA	*-0.009*	*-0.012*
	(0.46)	(-0.77)
AUDITCOMMITTEE	-0.011	
	(-0.38)	
*POST*AUDIT*	0.047*	
	(1.41)	
*MA*AUDIT*	-0.024	
	(-0.73)	
*POST*MA*AUDIT*	-0.071**	
	(-1.84)	
BUSYBOARD		-0.017
		(-0.47)
*POST*BUSYBOARD*		0.039
		(0.82)
*MA*BUSYBOARD*		-0.009
		(-0.19)
*POST*MA*BUSYBOARD*		-0.083*
		(-1.33)
SIZE	-0.003	-0.002
	(-0.40)	(-0.37)
LEV	0.002	0.001
	(0.49)	(0.37)
GROWTH	0.186***	0.167***
	(2.68)	(2.42)
ROA	-0.597***	-0.591***
	(-5.50)	(-5.47)
LOSS	0.070***	0.072***
	(3.82)	(3.90)
σCFO	0.000***	0.000***
	(3.57)	(3.59)
CFO	0.154	0.143
	(0.98)	(0.91)
Year dummies	Included	Included
Industry dummies	Included	Included
Sample size	468	468
Adjusted R2	0.253	0.245

$$LFRQ=\alpha_0+\alpha_1 POST+\alpha_2 MA+\alpha_3 AUDITCOMMITTEE+\alpha_4 POST*AUDIT+\alpha_5 MA*AUDIT+\alpha_6 POST*MA*AUDIT+\alpha_7 SIZE+\alpha_8 Lev+\alpha_9 Growth+\alpha_{10} ROA+\alpha_{11} LOSS+\alpha_{12}\sigma CFO+\alpha_{13} CFO+\alpha_{14} Year\ dummies+_{15} Industry\ dummies+\varepsilon \quad (3)$$

$$LFRQ=\alpha_0+\alpha_1 POST+\alpha_2 MA+\alpha_3 BUSYBOARD+\alpha_4 POST*BUSYBOARD+\alpha_5 MA*BUSYBOARD+\alpha_6 POST*MA*BUSYBOARD+\alpha_7 SIZE+\alpha_8 Lev+\alpha_9 Growth+\alpha_{10} ROA+\alpha_{11} LOSS+\alpha_{12}\sigma CFO+$$

$\alpha_{13}CFO+\alpha_{14}Yeardummies+_{15}Industrydummies+\varepsilon$ (4)

This table reports the results of hypothesis 3 and hypothesis 4 by using another model specifications with interactive terms, as listed above. Column (1) presents the result of Model III which is used to test hypothesis 3 and column (2) presents the result of Model IV which is used to test hypothesis 4. In all specifications, variation across time is controlled for by including year fixed effects, and variation across industries is controlled for by including industry fixed effects with industry defined by two-digit SIC code (coefficient estimates are suppressed).Detailed variable definitions are in Appendix A. ***,**,and * denote statistical significance at the 1% ,5% and 10% level, respectively, based on one-tailed t-tests.

TABLE 7
Additional Test of the Impact of LFRQ Construction on Effect of Multiple Directorships on Financial Reporting Quality

Dependent Variable	(1) LFRQ	(2) LFRQ (Audit committee)	(3) LFRQ (Busy Board)
Variables	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
INTERCEPT	0.275*** (2.88)	0.264** (1.81)	-0.216 (-0.64)
POST	0.117*** (3.36)	0.17*** (3.33)	0.105 (1.05)
MA	0.006 (3.36)	-0.054 (-1.56)	-0.077* (-1.43)
*POST*MA*	-0.063* (-1.79)	-0.066* (-1.7)	-0.074 (-0.97)
SIZE	-0.01 (-1.09)	-0.000 (-0.02)	0.058* (1.85)
LEV	-0.001 (-0.26)	0.001* (0.1)	-0.000 (1.35)
GROWTH	0.142 (1.58)	0.010 (-0.06)	0.090 (0.25)
ROA	-0.270* (-1.93)	-0.416*** (-2.68)	-0.104 (-0.27)
LOSS	0.032 (1.33)	0.042 (1.20)	0.110 (1.53)
σCFO	0.000*** (2.92)	0.000 (0.85)	0.000** (2.14)
CFO	0.181 (0.89)	0.261 (1.18)	NONE
Year dummies	Included	Included	Included
Industry dummies	Included	Included	Included
Sample size	468	232	92
Adjusted R2	0.08	0.121	0.334

$$LFRQ = \alpha_0+\alpha_1 POST+\alpha_2 MA+\alpha_3 POST*MA+\alpha_4 SIZE+\alpha_5 LEV+\alpha_6 GROWTH+\alpha_7 ROA$$
$$+\alpha_8 LOSS+ \alpha_9 \sigma CFO + \alpha_{10} CFO+ \alpha_{11} Year\ dummies + \alpha_{12} Industry\ dummies +\varepsilon \quad (2)$$

This table reports OLS estimates on the effect of multiple directorships on financial reporting quality with LFRQ constructed by taking the measures in the pre-M&A period but determining their ranks using the data from the post-M&A period. Model II is run in full sample , audit committee subsample and busy board subsample to test hypothesis 2, hypothesis 3 and hypothesis 4, respectively. In all specifications, variation across time is controlled for by including year fixed effects, and variation across industries is controlled for by including industry fixed effects with industry defined by two-digit SIC code (coefficient estimates are suppressed).Detailed variable definitions are in Appendix A. ***,**,and * denote statistical significance at the 1% ,5% and 10% level, respectively, based on two-tailed t-tests.