Why Do CFOs Become Involved in Material Accounting Manipulations?[*]

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Abstract

This paper investigates why CFOs become involved in material accounting manipulations. To address this question, we examine various costs and benefits for CFOs who are associated with the manipulations in order to test two explanations: (i) CFOs instigate the earnings manipulations for immediate personal financial benefit, versus (ii) CFOs acquiesce to CEOs' pressure to manipulate earnings. Consistent with CFOs being acquiescent, we find that CFOs bear higher litigation cost yet reap less financial benefit than CEOs using a comprehensive sample of material accounting manipulations disclosed between 1982 and 2005. CFOs are more likely to be charged by the SEC for accounting manipulations than CEOs. Regarding financial benefit, while CEOs of manipulation firms have higher pay-for-performance sensitivity than CEOs of matched non-manipulating firms, CFOs of manipulating firms have similar pay-for-performance sensitivity to other non-CEO executives of manipulating firms and to CFOs of the matched firms. Moreover, we find that accounting manipulations are more likely when CEO power is high. Finally, our AAER context analyses suggest that CEOs of manipulation firms are more likely than CFOs to be described to have orchestrated the manipulation and to be ordered to disgorge financial gains from the manipulation. Taken together, our findings are consistent with the explanation that CFOs are involved in material accounting manipulations because they succumb to CEO pressure, rather than because they seek immediate personal financial benefit.

1. Introduction

Recent corporate accounting scandals have led to significant losses for investors and triggered a series of corporate governance reforms and legislative changes. Efforts have been made by both practitioners and academics to identify the underlying causes of these scandals. Prior research has focused on the incentives of CEOs or the executive team as a whole to manipulate accounting earnings (e.g., Burns and Kedia, 2006; Bergstresser and Philippon, 2006). However, there is little research on the incentives and role of Chief Financial Officers (CFOs) in material accounting manipulations.

We investigate CFOs' role in accounting manipulations for two reasons. First, CFOs typically oversee the process of preparing financial reports and are viewed as watchdogs for financial reporting quality. For firms with accounting manipulations, the CFOs have failed in their monitoring role. Moreover, relative to other executives, CFOs are in a unique position to carry out accounting manipulations, from transaction structuring, to choosing an improper accounting method, to making false journal entries.[1] Hence, understanding the CFOs' incentives regarding accounting manipulations is a necessary step to both enhancing CFOs' monitoring role in general and mitigating future occurrences of accounting scandals. Second, while previous studies have investigated CEOs' role in accounting manipulations (e.g., Efendi, Srivastava, and Swanson, 2007), CFOs may undertake accounting manipulation for different reasons, since their job responsibilities and compensation structure are different from those of CEOs. Given that CFOs are subordinates of CEOs, examining CFOs' involvement in accounting manipulation also provides insights into the implications of corporate organizational structure (e.g., the relationship

[1] For example, Scott Sullivan, former CFO of WorldCom, admitted that he made most of the accounting decisions even though he knew they were illegal.

between CFOs and CEOs) for financial reporting quality and provides evidence relevant in considering alternative suggestions for corporate governance reform.

To address our overarching research question, we consider two explanations for CFOs' involvement in accounting manipulations. On one hand, CFOs may instigate accounting manipulations for immediate personal financial gains. For example, the former Chairman of the Federal Reserve Board, Alan Greenspan, argues that too many corporate executives (including CFOs) artificially inflate reported earnings in order to harvest stock market gains. Further, in testimony before the Senate Finance Committee, Internal Revenue Service Commissioner Mark Everson states that "boards would be better served if the CFO has a fixed package and has absolutely no incentive" (Katz, 2006). Consistent with this view, Jiang, Petroni, and Wang (2008) find that CFO equity incentives are more important than CEO equity incentives in explaining earnings management measures (i.e., accruals, frequency of meeting earnings benchmarks, restatements). Corporate boards also seem to concur with this view and have reduced CFOs' incentive compensation after passage of the Sarbanes-Oxley Act (e.g., Wang, 2006; Indjejikian and Matejka, 2008).[2] An example from an AAER consistent with CFO as the instigator is the following excerpt from Measurement Specialties Inc. (AAER no. 2046)

> … former chief financial officer, Kirk J. Dischino, … orchestrated and carried out two separate accounting frauds at MSI. First, the complaint alleges that, from June 2000 through September 2001, at Dischino's direction, MSI materially overstated its earnings by capitalizing overhead expenses into inventory ... In a manner clearly inconsistent with GAAP and over the repeated objections by MSI operating division heads and internal accounting personnel, Dischino shifted certain manufacturing and overhead costs to inventory, through accounting

[2] Consistent with this view, CEOs frequently argue that CFOs who engage in accounting manipulations are driven by their own financial incentives. For example, Richard Scrushy, the former CEO of Healthsouth, blames his former CFOs for an accounting fraud totaling at least $2.5 billion. "Every one of them has a motive," Scrushy said in an interview, "Promotions, bonuses, stock options, an opportunity to make a lot of money. . . . Power. Greed. There are a lot of reasons for what they did. . . . I certainly didn't commit the fraud. The people know me. They know I wouldn't instruct somebody to do that." (Wall Street Journal, October 15, 2003).

> adjustments he termed "production credits." As a result of the production credit adjustments, MSI materially overstated its earnings and its inventory…
>
> Dischino engaged in insider trading by selling MSI stock in December 2001 while he was aware of the true facts of MSI's overstated earnings and inventory, and its default, thereby avoiding losses of $215,734.

On the other hand, CFOs may become involved in accounting manipulations because of pressure from CEOs. As the CFOs' superior, CEOs can influence various decisions related to CFOs' future career opportunities and compensation, which in turn enables CEOs to impose pressure on CFOs regarding financial reporting (Matejka, 2007). For example, for the Regina Company, Inc., the SEC alleges that Sheelen (former CEO) instructed Golden (former CFO) to not record product returns received by Regina in order to falsely inflate sales to meet the sales target for the quarter (see AAER no. 215).

While we cannot directly observe either CFOs' personal motivations or the interactions between CEOs and CFOs for why CFOs become involved in material accounting manipulations, we provide indirect evidence to identify the *dominant* explanation of accounting manipulations - CFO as the instigator versus CFO being acquiescent to CEO pressure.[3] Specifically, we analyze and provide evidence on various costs and benefits of becoming involved in accounting manipulations for CFOs.

First, we compare the litigation risk (as a proxy for costs) of the CEO and CFO associated with accounting manipulations using a comprehensive sample of firms that have been subject to SEC enforcement actions for manipulating financial reports between 1982 and 2005. CFOs' job responsibilities include direct oversight for financial reporting. As a result, CFOs,

[3] Note that we do not suggest that these two explanations are mutually exclusive. However, identifying the primary explanation is important for corporate governance reform since these two explanations yield different policy implications: redesigning compensation packages versus improving CFOs' independence from CEOs (discussed further below). We also discuss other potential explanations for CFOs' involvement in accounting manipulation in footnote 6.

unlike CEOs, cannot convincingly claim that they have not mastered certain accounting concepts or that they are not aware of the existence of accounting manipulations. Hence, in the case of accounting manipulations, we expect that CFOs can be pursued by the SEC more easily during the litigation process and thus bear a higher litigation risk than CEOs. Consistent with our prediction, we find that CFOs are more likely than CEOs to be pursued by the SEC during the investigation of material accounting manipulation cases.

Next, we examine the immediate financial benefits associated with accounting manipulations for CFOs. We find the CFOs' pay-for-performance sensitivity is not significantly different from that of other non-CEO executives within the manipulation sample firms. We also find that CFOs' pay-for-performance sensitivity for manipulation firms is not significantly different from that of control firms. However, we find that the pay-for-performance sensitivity for CEOs is significantly higher for manipulation firms than for control firms, and the ratio of the CFO pay-for-performance sensitivity as a percentage of total CEO and CFO pay-for-performance sensitivities is lower for manipulation firms than control firms. These findings suggest that CEOs appear to have strong financial incentives to manipulate earnings, while CFOs do not.

To further disentangle whether CFOs are primarily the instigators or are pressured by CEOs, we investigate the role of CEO power in accounting manipulations. On one hand, if CFOs are the instigator of accounting manipulations, we predict that CEO power is either not related to, or negatively related to, accounting manipulation to the extent that powerful CEOs are able to stop CFOs from wrong-doing. On the other hand, if CFOs are pressured into manipulations, we expect that CEO power is positively associated with accounting manipulations because more powerful CEOs can more effectively pressure CFOs to commit accounting

manipulations. We measure CEO power by the ratio of CEO total pay to total top executives' total pay (CEO pay slice), whether a CEO serves as Chairman of the Board or has status as a company founder (Bebchuk, Cremers, and Peyers, 2008). Findings using all these measures suggest that accounting manipulations are more likely in the presence of powerful CEOs.[4]

We next investigate the potential costs for CFOs if they appear to refuse to manipulate earnings. Specifically, we look at the CFO turnover rate in the three-year period *prior* to the accounting manipulation period. While we do not expect an abnormal CFO turnover rate during this time period if CFOs are the instigators, we predict higher CFO turnover if CFOs are pressured by CEOs to participate in accounting manipulations. When CEOs pressure CFOs to manipulate earnings, some CFOs may refuse to do so. As a result, the CFOs may be fired or choose to resign. We find that CFO turnover is significantly higher in the manipulation firms within the three-year period prior to the occurrences of material accounting manipulations than it is for matched firms while controlling for various firm performance measures, such as abnormal stock returns, return on assets and change in sales. This result is consistent with the argument that CEOs attempt to pressure CFOs to facilitate accounting manipulations.

Finally, to complement the above analysis, we use the discussion in the AAERs to examine the role and financial benefits of CFOs and CEOs in accounting manipulations. The SEC usually releases an AAER during or at the completion of investigations of an accounting or auditing related issue. An AAER typically describes the alleged party's involvement in accounting manipulations and whether the SEC seeks disgorgement of gains (e.g., improper profits from insider trading) from manipulations. Therefore, the AAER content analysis allows

[4] This set of results complements and extends the findings in Dechow et al. (1996) that AAER firms are more likely to have a Chief Executive Officer who also serves as chairman of the board or founder of the company. We use a more recent and comprehensive sample of AAER firms and more measures of CEO power. More importantly, we contribute beyond Dechow et al. by focusing on the role of CFOs in accounting manipulations.

us to take advantage of the evidence that the SEC accumulated during the investigation, conditional on being disclosed in the AAERs.[5] We expect that the instigator of the manipulations is more likely to (1) be described as an orchestrator of the manipulations, and (2) to have benefited financially from misreporting. Consistent with our previous findings, we show that compared with CEOs, CFOs are less likely both to be described as having orchestrated the accounting manipulations and to be requested to disgorge financial benefits from the manipulation, suggesting that CFOs become involved in accounting manipulations under pressure from CEOs.

In summary, we find that CFOs bear a higher litigation risk yet reap lower personal financial benefits from committing accounting manipulations than CEOs. CFOs do not exhibit higher pay-for-performance sensitivities than the other non-CEO executives within the manipulation firms nor compared to CFOs of a control sample. CEOs of manipulating firms exhibit higher pay-for-performance sensitivities than CEOs of non-manipulating firms. These findings suggest that CEOs have stronger financial incentives to instigate accounting manipulations. We therefore expect them to exert their power over CFOs to achieve their objectives. Accordingly, we find that CEO power is positively associated with the likelihood of accounting manipulation and CFOs are more likely to leave the companies prior to the accounting manipulation period, consistent with some CFOs losing their jobs because they said no to CEO pressure to manipulate earnings. Moreover, the analysis based on the content in AAERs suggests that CEOs are more likely to be described by the SEC as having orchestrated the accounting manipulations as well as benefiting financially from the manipulations than CFOs. Taken together, our findings are more consistent with the explanation that CFOs become

[5] For example, besides compensation, the SEC can identify other financial benefits that the executives obtain from accounting manipulation, such as embezzlement and the exact amount of insider trading profits.

involved in accounting manipulation under pressure from CEOs, rather than instigating such manipulation for immediate personal financial gains.[6]

Some caveats are in order. First, we assume that CFOs of accounting manipulation firms are aware of or are involved in misreporting. We believe this assumption is reasonable given that one of the main job responsibilities of CFOs is to watch over the financial reporting process and make related decisions. However, in some unusual cases accounting manipulations could occur without knowledge of CFOs (e.g., CEOs collude with divisional managers to create fictitious sales and hide the manipulation from CFOs). These cases are likely to add noise instead of introducing systematic bias to our empirical results. Second, we assume that the companies identified by the SEC indeed have manipulated financial statements. This assumption seems reasonable given that the SEC spends effort and resources to establish evidence for the alleged manipulations. However, the SEC likely does not identify all the companies with accounting manipulations; as a result, our control firms might have "uncaught" manipulation firms. This issue would be a concern if the SEC systematically pursues companies with characteristics examined and found significant in our empirical tests, but we are not aware of any evidence supporting this possibility.

[6] Moreover, our evidence does not seem to provide support to the following alternative explanations. First, if the CEO pays the CFO a lump sum to manipulate (without pressuring), such payment would not show up in the pay-for-performance sensitivity. If this is the main explanation, we would not observe CEOs to be more powerful for manipulation firms. However, if the CEO pays the CFO for manipulation via increased option or restricted stock awards, this would show up as an increased sensitivity for CFOs, which is not what we find. Second, CFOs might also instigate accounting manipulations if the firm is performing poorly and the CFO expects to lose his/her job. Prior studies (Mian 2001; Fee and Hadlock, 2004) show that both CFO and CEO turnover is increasing with poor firm performance. However, if this is the main explanation, we would not expect to observe more powerful CEOs in manipulation firms. Furthermore, if CEOs create a corporate culture focusing on meeting earnings targets and CFOs (not CEOs) would be fired if earnings targets are not met, then this scenario would be consistent with our "CFO pressured" explanation. Third, CFOs and CEOs might collude to orchestrate the accounting schemes. If there is implicit pressure in such collusion, it would still be consistent with the "CFO pressured" explanation. If CFOs purely "kiss up to" CEOs, then we would not expect to observe manipulation firms' CEOs to be more powerful.

While subject to these caveats, our paper contributes to the understanding of CFOs' incentives when faced with accounting manipulation decisions. Because CFOs are in charge of corporate financial reporting, material accounting manipulation schemes are unlikely to succeed without the facilitation of CFOs. Thus, understanding CFOs' costs and benefits associated with accounting manipulation is critical to effectively prevent future manipulations and improve financial reporting quality. Our findings suggest that CFOs are typically not the instigator of accounting manipulations. Instead, it appears that CEOs, especially powerful CEOs, exert significant influence over CFOs' financial reporting decisions. In other words, CFOs' role as watchdog over financial reports is compromised by the pressure from CEOs.

The findings of this study have important implications for current corporate governance reform. Researchers, practitioners, and regulators generally appear to have concluded that stock-based compensation, especially stock options, has provided managers with incentives to misstate accounting numbers. Many claim that executive pay practices have to be fixed in order to prevent material accounting manipulations (Lublin, 2003). Our results suggest that redesigning compensation packages for CFOs is not necessarily the right remedy. The CFO has to balance the dual roles of subordinate to the CEO and watchdog for financial reporting quality. In order to improve accounting information quality, it appears to be more important to improve CFO independence by alleviating the pressure of CEOs on CFOs. One possible way to accomplish this is to have boards or audit committees more involved in CFO performance evaluation and retention decisions (Matejka, 2007).

The remainder of the paper is organized as follows. Section 2 reviews previous research and develops our hypotheses. Section 3 describes our sample and research design. Section 4 presents empirical results, and Section 5 concludes.

2. Previous literature and hypothesis development

Previous research has shown that material accounting misrepresentations can have extremely negative capital market effects. Dechow, Sloan, and Sweeney (1996) find that after investors discover accounting manipulations, these firms experience significant increases in their cost of capital. Consistently, Karpoff, Lee, and Martin (2008b) document that firms on average lose 38 percent of their market value when financial misrepresentations are publicly disclosed. Moreover, according to a published report by GAO in 2002, recent accounting restatements have diminished public confidence in the capital markets and business community by causing a market capitalization loss of around $100 billion for the restating firms.

A stream of existing literature attempts to address the reasons for these accounting manipulation cases. These papers have mainly focused on the role and incentives of either CEOs or the executive team as a whole in accounting manipulations.[7] Surprisingly few studies examine why CFOs, who are key players in the financial reporting process, engage in material accounting manipulations. CFOs are typically in charge of financial planning, budgeting, internal control, and financial reporting processes (Gore, Matsunaga, and Yeung, 2007; Kaufman, 2003) and thus are closely involved in the financial reporting process. Consistent with this, prior studies have found that CFOs have significant influence over companies' financial reporting (e.g., Geiger and North, 2006; Ge, Matsumoto, and Zhang, 2008). In accounting manipulation cases, CFOs clearly fail in their monitoring role over financial reporting. Moreover, CFOs often facilitate or even carry out accounting schemes to inflate earnings. For example, Stuart G. Lasher, former CFO of Silk Greenhouse, created and backdated a number of memoranda and

[7] See, for example, Bartov and Mohanram (2004), Harris and Bromiley (2006), Johnson, Ryan, and Tian (2007), Efendi, Srivastava, and Swanson (2007), and Peng and Roell (2007).

workpapers in order to justify the improper deferral of expenses.[8] Given CFOs' critical role in accounting manipulation, we investigate various costs and benefits of the manipulations for CFOs to provide evidence on the two hypotheses for CFO involvement in accounting manipulations: "CFO as instigator" of the accounting manipulation for immediate personal financial gain versus "CFO pressured" by the CEO into participating in accounting manipulations.

We start with analyzing the costs to CFOs associated with manipulating financial reports. In the presence of accounting manipulations, CFOs' costs involve both litigation risk and loss of jobs. Given that Hennes, Leone, and Miller (2008) have documented that *after* intentional GAAP violations, the CFO turnover rate is significantly higher than the CEO turnover, we focus on the litigation risk associated with the charges brought up by the SEC for CFOs in the presence of accounting manipulations.[9]

In the Accounting and Auditing Enforcement Releases, the SEC usually charges these companies under Rule 13b2 of the Securities Exchange Act of 1934. Rule 13b2 states that "(every issuer) shall make and keep books, record, accounts, which, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the issuer."[10] CFOs are the ones who watch over the financial reporting process; thus CFOs could be easily pursued by the SEC (e.g., the SEC could obtain evidence such as signatures on illegal documents) during the legal process when firms are revealed to have material accounting manipulations. In contrast, CEOs can always argue that they have performed their jobs with reasonable diligence,

[8] See SEC Accounting and Auditing Enforcement Release No. 518 issued in 1994.
[9] Moreover, Leone and Liu (2008) find that, following accounting restatements, CFOs are more likely to be fired when the CEO is a founder of the company. Karpoff, Lee, and Martin (2008a) find that, for firms with financial misrepresentations, 93.4% of responsible individuals identified by the regulators lose their jobs during either the manipulation period or the enforcement period.
[10] More specifically, rule 13b2-1 and rule 13b2-2 are often cited in the AAERs. Rule 13b2-1 relates to falsification of accounting records, and rule 13b2-2 relates to representations and conduct in connection with the preparation of required reports and documents.

that they do not have knowledge of detailed information at transactional levels, or that they do not understand certain financial/accounting matters, even if CEOs actually pressure CFOs to manipulate financials. For example, former CEO of Worldcom, Bernard Ebbers, claimed that he is "… a PE graduate, not an economist." However, it is more difficult for CFOs to proffer an effective excuse. Therefore, our first hypothesis is as follows.[11]

H1: CFOs face a higher litigation risk than CEOs in the presence of material accounting manipulations.

H1 studies the costs from manipulating financial reports for CFOs; we next analyze the financial benefits associated with accounting manipulations for CFOs. Both researchers and practitioners have blamed stock-based compensation, especially the stock option component, for offering managers incentives to manipulate financials. Consistent with this argument, prior research has also documented that CEOs' stock incentives appear to be associated with various earnings management measures, such as discretionary accruals, the likelihood of meeting or beating analyst forecasts, and the likelihood of restatements (e.g., Bartov and Mohanram, 2004; Cheng and Warfield, 2005; McVay, Nagar and Tang, 2006; Burns and Kedia, 2006).[12] Moreover, Cheng and Farber (2008) show that CEOs' option component of incentive compensation is adjusted downward within the two-year period subsequent to restatements. These studies, however, examine either only CEOs' compensation or the whole executive team's

[11] Note that we focus on the *ex post* costs for CEOs and CFOs when accounting manipulations are discovered. Expected costs of manipulating financial statements are a function of the *ex ante* probability of firms being caught and expected penalties from being caught. However, we do not empirically examine this probability because it is difficult to quantify and our interest is in the difference between the costs for CEOs and CFOs, assuming the expected probability of firms being caught to be the same for CEOs and CFOs.

[12] Erickson, Hanlon, and Maydew (2006), however, do not find an association between accounting fraud and stock-based compensation of the top five managers using a sample of 50 fraud firms, in contrast to the findings in the above-mentioned studies and our findings. The differences in results could be due to differences in sample size, top managers included in the analyses (i.e., we focus on CEO and CFO incentive compensation while they examine the combined compensation of the top five managers) or nature of the sample. For example, we examine material accounting misstatements disclosed in the AAERs, which is a broader category than pure fraud firms.

compensation. It remains unclear whether CFOs are driven by the same incentives to manipulate financial reports.

A concurrent paper by Jiang, Petroni, and Wang (2008) document that CFOs' equity incentives are more associated with their measures of earnings management (e.g., discretionary accruals) than CEOs' equity incentives.[13] Their finding suggests the important role of CFOs' equity incentive in earnings management. Accordingly, if CFOs instigate the accounting schemes, we would observe high financial incentives for CFOs. Specifically, we expect to observe that the financial incentives (i.e., pay-for-performance sensitivity) of CFOs in manipulating firms are higher than that of CFOs in non-manipulating firms. Within manipulating firms, we also expect to observe greater financial incentives for CFOs than for other non-CEO managers. If CFOs become involved in accounting manipulations under pressure from CEOs, then we do not expect to observe such differences in the above two comparisons. Our second hypothesis is stated as follows.

H2a (CFO as an instigator): CFOs of firms with material accounting manipulations face strong financial incentives.

H2b (CFO pressured): CFOs of firms with material accounting manipulations do not face strong financial incentives.

Prior studies document that CEOs' equity incentives are higher than those of lower ranked executives (e.g., Aggarwal and Samwick, 2003; Barron and Waddell, 2003). Specifically, Chava and Purnanandam (2007) find significantly higher pay-for-performance sensitivities for CEOs than for CFOs. Thus we do not directly compare CFO to CEO incentives. However, if the CFO is the instigator, we do not expect to observe higher CEO pay-for-

[13] Jiang, Petroni, and Wang (2008) examine discretionary accruals, the likelihood of beating benchmarks, and restatements. They do not examine earnings manipulations disclosed in the AAERs, which usually involve egregious GAAP violations.

performance incentives in the manipulation firms than in the control sample. If CFOs are pressured by CEOs for the latter's own financial gain, then we expect to observe higher CEO pay-for-performance incentives in the manipulation firms than in the control sample. Thus we expect the following.

H2c (CFO as an instigator): CEO financial incentives are not higher for manipulating firms than for non-manipulating firms.

H2d (CFO pressured): CEO financial incentives are higher for manipulating firms than for non-manipulating firms.

After analyzing CFOs' costs and benefits if they undertake accounting manipulations (H1 and H2), we next investigate the role of CEO power in accounting manipulations to further disentangle whether CFOs of manipulation firms are primarily the instigator or acquiesce to pressure from the CEO. CEOs usually have a voice in various decisions regarding the welfare of their subordinates, including CFOs (e.g., renewal of contracts, promotion, and compensation; Matejka, 2007). CEOs also participate in decisions related to organizational structure, such as whether CFOs have an opportunity to report directly to the board. More powerful CEOs can exert their will and influence corporate decisions, including those related to CFOs (e.g., Finkelstein, 1992; Adams, Almeida, and Ferreira, 2005).

If CFOs are the instigator of accounting manipulations, we expect that CEO power is either not related to or negatively related to the likelihood of accounting manipulation, depending on whether powerful CEOs are able to stop CFOs from wrong-doing. If CFOs engage in accounting manipulations under CEO pressure, in addition to having financial incentives, CEOs also need to have the ability to succeed in pressuring CFOs. We expect that powerful CEOs are more likely to be successful in pressuring CFOs into managing earnings. Specifically, powerful CEOs can determine CFOs' future welfare in the company and establish an organizational

structure that minimizes CFOs' independence. CFOs are more likely to lose certain financial benefits, or even their jobs, if they do not please powerful CEOs. Powerful CEOs likely push CFOs to become involved in accounting manipulations either through direct communications or by creating a corporate culture that overemphasizes the importance of meeting short-term accounting targets. Therefore, our next hypothesis is as follows.

H3a (CFO as an instigator): CEOs are not more powerful in manipulating firms than in non-manipulating firms.

H3b (CFO pressured): CEOs are more powerful in manipulating firms than in non-manipulating firms.

Finally, we examine the costs to the CFO of refusing to participate in accounting manipulations. Obviously, we cannot directly observe whether CEOs demand that CFOs manage earnings and how CFOs' responses affect their welfare. Hence, we focus on CFO turnover rate prior to the accounting manipulation period to infer the costs to CFOs of saying no. If CFOs are the instigator of accounting manipulations, we do not expect a higher CFO turnover rate during the pre-manipulation time period. However, if pressure from CEOs is the main factor that motivates CFOs to engage in accounting manipulations, we expect some CFOs not to succumb to the pressure and to say no to manipulating earnings. When CFOs disagree with CEOs on whether to manipulate accounting numbers, CEOs can exercise their power by firing them or forcing them to resign. For example, Roy Olofson, a former finance executive of Global Crossing, lost his job after raising questions about the company's improper accounting. In other words, we expect to observe higher CFO turnover during the pre-manipulation time period if CFOs undertake earnings manipulations under pressure from CEOs.[14] Therefore, our next hypothesis is as follows.

[14] Higher CFO turnover during the manipulation period is consistent with instigator CFOs being fired when found out, but it is also consistent with the CFO being fired for saying no and a new CFO being hired and manipulating

H4a (CFO as an instigator): CFOs are not more likely to leave the company prior to the occurrences of material accounting manipulations than CFOs of non-manipulation firms.

H4b (CFO pressured): CFOs are more likely to leave the company prior to the occurrences of material accounting manipulations than CFOs of non-manipulation firms.

3. Research design and data

3.1 Data and sample selection

Our sample selection begins with 2,261 Accounting and Auditing Enforcement Releases (AAER) issued by the SEC from May 17th, 1982 through June 10th, 2005. Since 1982, the SEC has issued Accounting and Auditing Enforcement Releases (AAERs) against a company, an auditor, or an officer for alleged accounting and/or auditing misconduct. These releases provide varying degrees of detail on the nature of the misconduct, the individuals and entities involved, and the effect on the financial statements.[15] Table 1 reports the sample selection procedure. There are a total of 896 firms referenced in the AAERs. We first exclude 219 firms charged for conduct other than earnings manipulations (e.g., bribery, disclosure issues, etc.) or that could not be linked to specific manipulation periods. Among the remaining firms, 178 firms do not have valid CUSIP identifiers, resulting in a sample of 499 firms. These 499 manipulation firms are our base sample and are used in our litigation risk analysis for CEOs and CFOs.[16]

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earnings in the same year. Thus we do not examine CFO turnover within the manipulation period because it is non-diagnostic.

[15] One limitation associated with using the AAER sample is that this database captures only those accounting manipulations that were identified and pursued by the SEC. However, we choose to use the AAER sample rather than the GAO restatement database because the restatement database does not distinguish restatements based on either intention or economic magnitude. Many restatements are caused by unintentional errors in applying accounting rules rather than intentional misbehavior (Plumlee and Yohn, 2008; Hennes et al. 2008). See Dechow et al. (2008) for an in-depth discussion of the differences between material misstatements identified in the AAER database and financial restatements in the GAO restatement database.

[16] Dechow et al. (2008) document the characteristics of the manipulation firms in the AAER sample. For example, they find that the years 1999 and 2000 have the most manipulations, and that alleged manipulations are common in large firms. The industries in which manipulations most commonly occurred are computers, retail, and general services. They also document that the manipulating firms tend to have shown strong performance prior to the manipulations.

In order to assess the litigation risk that CEOs and CFOs bear, we read through each AAER and collect the data items that answer the following three questions: (1) When was the AAER released? (2) Is the AAER issued against CEOs, CFOs, or both? (3) Is the AAER associated with an administrative proceeding and/or a litigation release? The SEC usually names individual parties in the release and describes their positions in the company. In most cases, the position of CFO is clearly described. In some cases, the SEC charges the person who is responsible for financial reporting in the company; the job function is similar to that of a CFO but carries a different title (e.g., Chief Accounting Officer). We treat individuals with such job titles as CFOs because we define CFOs as the top officer in charge of corporate financial reporting.[17]

In the executive compensation analysis, we exclude 90 more firms that are involved only in quarterly manipulations and correct their financial statements before filing annual reports (10-Ks) with the SEC. These firms are removed from the sample because accounting manipulations discovered prior to the fiscal year end could have an impact on executive compensation, which would reduce the power of tests for our third hypothesis. This leaves us with 409 firms with alleged annual accounting manipulations. We obtain executive compensation data from the S&P ExecuComp database. When data are not available in ExecuComp, we hand-collect compensation data from proxy statements (DEF 14A) filed with the SEC Edgar. This data collection procedure results in a sample of 86 firms and 130 firm-years.[18]

[17] Among 297 cases in which CFOs were charged, 24 percent of them hold a title other than Chief Financial Officer. We read each case carefully to determine whether this person is the company's top person in charge of financial reporting.

[18] This big reduction in the sample size arises for two reasons. First, SEC Edgar has provided proxy statements only since 1994; second, the SEC does not require disclosure of compensation lower than $100,000 in the proxy statements, which further limits the availability of CFO compensation data. This data constraint therefore limits the generalizability of our study to more highly paid CFOs.

We next compile a control sample. For each manipulation firm, we identify firms in ExecuComp in the same industry and with total assets in the range of 80 percent to 120 percent of the manipulation firm's total assets in the year prior to the start of the manipulation period. We follow Frankel, Johnson, and Nelson's (2002) SIC-based industry classification scheme. If there are more than two matches, we keep the two matches with closest total assets in the year immediately before the manipulation years. Due to the firm size constraint, 14 manipulation firm-year observations are without matches and 13 manipulation firm-years have only one match.[19] After excluding firm-years for which we cannot find matches, our final accounting manipulation sample with CEO and CFO compensation data consists of 74 firms with 116 corresponding firm-years.

3.2 Key empirical measures

To test H1, we measure litigation risk by both the likelihood and the timing of a CFO or a CEO being charged by the SEC. To examine H2, we use pay-for-performance sensitivity to proxy for financial incentives. Pay-for-performance sensitivity is calculated as the total change in value of the executive's stock, restricted stock, and stock option portfolio in response to a one percent change in the stock price (in $thousand) using the method described by Core and Guay (2002).

We test our third hypothesis by measuring CEO power in three ways. The first measure is the CEO's percentage of aggregate top five executives' compensation, including salary, bonus, other annual pay, the total value of restricted stock granted, Black-Schole value of stock options

[19] The results are similar when we expand the matching constraint of 80-120 percent to 50-150 percent of manipulation firm-years.

granted, long-term incentive payouts, and all other total compensation (*CEO_PAYSLICE*).[20] Bebchuk et al. (2008) suggest that this measure could be useful in capturing whether the CEO has a dominant management style. Accordingly, they find that CEO pay slice is higher for firms with weaker shareholder rights and more management entrenching provisions. They also find that CEO turnover is less sensitive to performance for firms with high CEO pay slice. Taken together, their evidence supports using CEO pay slice as a measure of CEO power or CEO dominance in the management team. The next two CEO power measures are whether the CEO is Chairman of the Board (*CEO_CHAIRMAN*) and whether the CEO is a founder of the company (*CEO_FOUNDER*). Existing literature suggests that CEOs are more powerful when they hold the position of Chairman of the Board, and CEO power is positively associated with status as a company founder (e.g., Morck, Shleifer, and Vishny, 1988; Adams, Almeida, and Ferreira, 2005). We obtain the information on Chairman and founder status from companies' proxy statements or 10-K filings for both manipulation firms and their match firms. We test H4 by examining the likelihood of CFO turnover (*CFO_TURNOVER*) during the three-year time period prior to the first accounting manipulation year, conditional on having no change in CEO. The specific variables are defined in Table 1 Panel B.

[Table 1]

[20] Companies sometimes list less or more than five executives' compensation amounts in their proxy statements. For example, companies may not disclose compensation information for some of the executives, because the SEC does not require disclosure of compensation lower than $100,000 (SEC release no. 33-6486). In order to increase comparability, we adjust the number of executives to five for each company. Specifically, if fewer than five executives' compensations are disclosed in a given year, we assume that the remaining top five undisclosed executives receive the same level of compensation as the lowest-paid executive among those disclosed in the proxy statements. If proxy statements disclose more than five executives in a given year, we keep the compensation for the top five executives.

4. Empirical results

4.1 Litigation risk

H1 predicts that CFOs face a higher litigation risk than CEOs for firms with material accounting manipulations. We examine litigation risk from two dimensions: the likelihood and the timing of being charged by the SEC. If CFOs have a higher litigation risk, we expect that they are more likely to be charged by the SEC than CEOs. Moreover, if both CFOs and CEOs are charged, we expect CFOs to be charged earlier than CEOs because CFOs are held responsible for financial reporting; they are likely the first officer to be questioned when accounting manipulations are discovered.

We first compare the overall likelihood of being charged by the SEC for CFOs and CEOs in the presence of material accounting manipulations. The results are presented in Table 2 Panel A. We report both the number of firms and the percentage (in parentheses). The litigation risk analysis uses a total of 493 companies.[21] These firms have manipulated either quarterly and/or annual financial statements. Overall, 67.14 percent (21.10% + 7.91% + 38.13%) of firms have either their CEOs or CFOs charged by the SEC. Out of 493 firms, 104 (21.10%) companies' CFOs were charged by the SEC, while their CEOs were not charged. In contrast, only 39 (7.91%) companies' CEOs were pursued by the SEC while the CFOs were not. We employ the McNemar Chi-Square test to determine whether the likelihood of being charged by the SEC is significantly higher for CFOs than CEOs.[22] The Chi-Square statistic is 29.55 (p-value<0.001), suggesting that the likelihood of CFOs being charged is significantly higher than the likelihood

[21] We focus on the 499 AAER firms with CUSIP. We delete three cases in which the AAER disclosed that these companies do not have CFOs. For example, the CEO for ANW Inc is the sole officer of the company. We also removed three companies because the same person occupies the positions of CEO and CFO. This procedure results in a total of 1606 AAERs associated with 496 firms.

[22] The McNemar Chi-Square test directly examines the hypothesis that the frequencies in diagonal cells are identical.

of CEOs being charged. This finding is consistent with H1 that CFOs bear a higher litigation risk resulting from accounting manipulations than CEOs.

Our next set of tests examines whether the results presented in Table 2 Panel A differ based on types of SEC complaints: administrative proceeding versus litigation release. An administrative proceeding is defined as "a hearing, inquiry, investigation, or trial before an administrative agency …" (Garner 1999), while litigation releases are always associated with the occurrence of a lawsuit. These two types of complaints may differ based on the nature of the accounting manipulations; however, they are not mutually exclusive. Table 2 Panel B and C report the results. 274 of the 493 companies have administrative proceedings from the SEC, and 415 out of 493 companies have litigation releases.[23] As shown in Panel B, 39.05 percent (27.01% + 12.04%) of firms have administrative proceedings issued against their CFOs, while only 13.86 percent (1.82% + 12.04%) of firms have administrative proceedings issued against their CEOs. Moreover, only 5 out of 274 companies have CEOs but not CFOs pursued. The McNemar Chi-Square test yields a test statistic of 60.27 (p-value<0.001), again providing evidence consistent with H1.

Panel C of Table 2 lists the likelihood of CEOs and CFOs being brought to litigation by the SEC. Overall, 60.96 percent (15.18% + 37.59% + 8.19%) of firms have either CFOs or CEOs, or both, under litigation. While the number of firms with *only* CEOs under litigation is 34 (8.19%), the number of firms with *only* CFOs under litigation is almost twice that at 63 (15.8%). The litigation likelihoods for CFOs are significantly higher than those for CEOs with a Chi-Square statistic equal to 8.67 (p-value = 0.003), consistent with H1. Moreover, sensitivity tests

[23] Among these firms, 194 firms have both administrative proceedings and litigation releases.

show that the findings of higher litigation risk for CFOs are robust to different time periods and firm size (not tabulated).[24]

[Table 2]

We next investigate the second dimension of litigation risk: the timing of SEC charges. Recall that in Table 2 Panel A, there are 188 companies with both CFOs and CEOs being charged by the SEC. For these firms, we expect CFOs to be charged earlier than CEOs. We use the AAER release date to proxy for the charge date. In our analysis, 167 out of 188 firms (88.8%) have CEOs and CFOs charged on the same day within the same AAER (not tabulated). This finding is not surprising. The enforcement period usually starts with an informal investigation and then proceeds to a formal investigation. Enforcement releases are commonly issued after the formal investigation (Karpoff et al., 2008b). Therefore, even though the SEC might start the process by investigating the CFOs, by the time of enforcement releases, the SEC is likely to charge the CEOs and CFOs at the same time if they have already obtained sufficient evidence during the investigation. This would reduce the power of our test.

Among the remaining 17 firms, 15 firms have CFOs charged earlier than CEOs, and two firms have CFOs charged later than CEOs. Moreover, the mean number of days between the dates CEOs were charged and the dates CFOs were charged is significantly positive, 34.6, with a t statistic of 2.23. This finding suggests that for these firms, on average, CFOs were charged 34.6 days earlier than CEOs, consistent with our prediction.

[24] Since the proxy statements on Edgar are only available for years during or after 1994, we partition our sample into two time periods: from 1971 through 1993, and from 1994 through 2002. Across both time periods, CFOs appear more likely to be charged by the SEC than CEOs. To analyze the potential impact of firm size, we partition the sample equally into three groups based on the rank of firm size, measured by total assets. To minimize data constraints, we measure firm size by total assets in the year prior to the manipulation year. We find that, for medium and large firms, the likelihood of being charged is significantly higher for CFOs. However, for small firms, CFOs do not appear to have a higher likelihood of being charged than CEOs. There are two potential reasons. First, small firms might not always have management-level accounting or finance staff, which would lead to a lower observed likelihood of CFOs being charged. Second, small firms without adequate internal control provide the CEOs with opportunities to single-handedly manipulate financial statements or undertake other fraudulent activities.

In summary, the empirical results are consistent with our first hypothesis. We find that CFOs are more likely to be charged by the SEC than CEOs in the presence of accounting manipulations. We also find that when both CEOs and CFOs are accused of participating in accounting manipulations, CFOs are likely to be charged earlier than CEOs, suggesting a potentially higher litigation risk for CFOs.

4.2 Incentive compensation and CEO power

We examine H2 regarding the financial incentives of CFOs (and CEOs) by conducting two sets of analyses. We first compare CFOs' pay-for-performance sensitivities with other non-CEO executives' pay-for-performance sensitivities within the manipulation sample because CFOs are likely to have ranks similar to those of other executives (e.g., Chief Operating Officer) in the corporate hierarchy. If CFOs are the instigator and are motivated financially, we expect sensitivities to be significantly higher for CFOs than for other executives (H2a). If CFOs acquiesce to CEOs pressure, we do not expect significantly higher incentive compensation for CFOs than for other executives (H2b). Second, we compare the CFOs' and CEOs' pay-for-performance sensitivities in manipulation firms to their respective counterparts in control firms. If CFOs are the instigator (H2a), we expect CFOs' pay-for-performance sensitivity to be higher for the manipulation firms than for the control firms. In contrast, if CFOs acquiesce to CEOs (H2b), we do not expect higher pay-for-performance sensitivities for CFOs of the manipulation firms than for those of the control firms. With respect to CEOs, under H2c (CFO as an instigator), we expect that CEO pay-for-performance incentives are not higher for the manipulation sample than the control sample, whereas under H2d (CFO pressured), we expect a positive association between CEO incentives and manipulation.

Table 3 reports univariate test results for H2. Panel A compares pay-for-performance sensitivity of CFOs of the manipulation firm-years with the average pay-for-performance sensitivity of the other non-CEO executive officers in the same firm-years. CFOs' pay-for-performance sensitivity (*CFO_SENSITIVITY*) is not significantly different from other executives' based on paired t-tests, indicating limited financial benefit for CFOs to engage in accounting manipulations. Table 3 Panel B presents descriptive statistics on CEO and CFO pay-for-performance sensitivities for our sample of manipulation firms and control firms. On average, CFOs' pay-for-performance sensitivity (*CFO_SENSITIVITY*) for the manipulation sample is not significantly different from that of the control sample, while the CEOs' pay-for-performance sensitivity (*CEO_SENSITIVITY*) is significantly higher than that of the control sample.[25] These results provide initial support for the pressured CFO explanation.

[Table 3]

Prior research has documented that manipulation firms are systematically different from other firms (Dechow et al. 2008). To control for the difference, we estimate the following logistic regression to further test H2 and H3.

$$\begin{aligned} MANIPULATION = {} & \alpha_0 + \alpha_1 CEO\_SENSITIVITY + \alpha_2 CFO\_SENSITIVITY \\ & + \alpha_3 CEO\_PAYSLICE + \alpha_4 CEO\_CHAIRMAN + \alpha_5 CEO\_FOUNDER \\ & + \alpha_6 \Delta CASH\ SALES + \alpha_7 \Delta EARNINGS + \alpha_8 \Delta INVENTORY \\ & + \alpha_9 \Delta RECEIVABLES + \alpha_{10} RSST\_ACCRUALS + \varepsilon \end{aligned} \quad (1)$$

where *CEO_SENSITIVITY* and *CFO_SENSITIVITY* measure the incentive of CEO and CFO, while *CEO_PAYSLICE*, *CEO_CHAIRMAN*, and *CEO_FOUNDER* measure CEO power. We expect α_2 to be positive if CFOs are the instigator (H2a), but insignificant or negative if CFOs acquiesce to CEOs (H2b). With respect to CEOs' incentive, we expect α_1 to be

[25] Also note that the means of CFO's pay-for-performance sensitivities for manipulation firms in Table 3 Panel B are different from the means in Panel A because we exclude 12 manipulation firms that do not have match firms.

insignificant or negative under H2c (CFO as an instigator), but positive under H2d (CFO pressured).[26] H3a (CFO as an instigator) predicts that accounting manipulations are not more likely when CEOs are powerful, while H3b (CFO pressured) predicts that accounting manipulations are positively related to CEO power. Therefore, we expect α_3, α_4, and α_5, to be negative or zero under H3a and significantly positive under H3b.

We include the other five variables as controls based on Dechow et al. (2008), Δ*CASH SALES*, Δ*EARNINGS*, Δ*INVENTORY*, Δ*RECEIVABLES*, and *RSST_ACCRUALS*. Dechow et al. (2008) find that firms with material accounting manipulations, on average, have higher change in cash sales, higher change in inventory, higher change in receivables, higher total accruals, and lower earnings growth.

Table 4 Panel A presents descriptive statistics on the characteristics of our sample of manipulation firms and control firms. It also presents two-tailed t tests of our predictions for the differences between the two groups. Turning to the CEO power measures, manipulation firms have higher *CEO_PAYSLICE* and are more likely to have CEOs serving as board chairmen and corporate founders than control firms. For example, the CEOs of manipulation firms take a mean of 38 percent of the aggregated top five executives' compensation, while the CEOs of control firms have a mean of 34 percent. In addition, for manipulation firms, 72.4 percent of CEOs hold the Chairman position, while only 58.3 percent of control sample's CEOs are also Chairman. The proportion of CEOs having founder status also varies significantly between manipulation firms and control firms (35.7 percent versus 22.3 percent). Taken together, the

[26] We also consider financial benefits from insider trading, in addition to incentive compensation. Summers and Sweeney (1998) find that executives of accounting manipulation firms sell more stock during the manipulation years. Using our sample, we find higher insider sale activities by CEOs than CFOs during the manipulation years; however, we do not find higher insider sale activities by CEOs when comparing with CEOs of matched firms. The difference between our result and the findings by Summers and Sweeney (1998) could be due to the difference in manipulation sample. Our sample covers all the AAERs released from 1982 through June of 2005, while their sample only covers the period 1980 through 1987.

univariate evidence on CEO power is consistent with H3b (as opposed to H3a), that material accounting manipulations are more likely in the presence of powerful CEOs.

Similar to Dechow et al. (2008), we find that manipulation firm-years have higher Δ*RECEIVABLES*, Δ*INVENTORY,* Δ*CASH SALES*, and lower Δ*EARNINGS* than non-manipulation firm-years. The difference in *RSST_ACCRUALS* is opposite to the documented direction in Dechow et al. (2008).[27]

Table 4 Panel B presents the correlations among the variables. Consistent with the descriptive statistics in Panel A, Table 3, *MANIPULATION* is not correlated with *CFO_SENSITIVITY* but is positively correlated with *CEO_SENSITIVITY*. The correlations of *MANIPULATION* with the CEO power variables are consistent with the descriptive results reported in Panel A, Table 4. The three CEO power variables are correlated with each other. The Spearman correlations of *CEO_PAYSLICE* with *CEO_CHAIRMAN* and *CEO_FOUNDER* are 0.139 (p-value=0.012) and -0.137 (p-value = 0.014), respectively. These correlations are consistent with the findings in Bebchuk et al. (2008), and suggest that these three measures capture different aspects of overall CEO power. We examine the incremental effects of these variables in the multivariate regressions, as specified in equation (3).

[Table 4]

Table 5 reports regression results. Note that the regressions are estimated based on firm-year data and there are multiple observations for some firms. As a result, we report estimates based on standard error clustered by firm for regressions. Column (1) reports the regression

[27] Note that the differences in these control variables are marginally significant at 10 percent level under one-tailed tests. Moreover, *RSST_ACCRUALS* is significantly higher for manipulation firm-years in Dechow et al. (2008). This difference in results could be due to the difference in sample. Our sample is a subsample of the sample used in Dechow et al. (2008) because of the constraint that proxy statements on Edgar are available only since 1994. Without this data constraint, the descriptive statistics on the control variables are similar to those of Dechow et al. (2008).

results for Equation (2) that has *CFO_SENSITIVITY* and *CEO_SENSITIVITY* as the explanatory variables and includes the control variables but excludes the CEO power variables. The coefficient on *CFO_SENSITIVITY* is significantly negative, consistent with H2b (CFO pressured). In contrast, the coefficient on *CEO_SENSITIVITY* is significantly positive, consistent with H2d (CFO pressured), indicating that CEOs have stronger financial incentives to initiate accounting manipulations than CFOs. To capture the relative financial incentives between CFOs and CEOs, we next calculate the ratio of CFOs' and CEOs' incentive compensation (*CFO_PPS_RATIO*) and use this ratio in place of *CFO_SENSITIVITY* and *CEO_SENSITIVITY* in the regression presented in Column (1). Specifically, *CFO_PPS_RATIO* refers to *CFO_SENSITIVITY* as a percentage of the sum of *CEO_SENSITIVITY* and *CFO_SENSITIVITY*. The regression results are presented in Column (2) of Table 5. The coefficient on *CFO_PPS_RATIO* is significantly negative, again suggesting that CEOs have stronger financial incentives to instigate accounting manipulations than CFOs.[28]

Column (3) reports the results of the regression model that include the three CEO power variables as explanatory variables. The significant positive coefficients on *CEO_PAYSLICE* (p-value<.01) and *CEO_FOUNDER* (p-value<.05) are consistent with H3b rather than H3a; i.e., manipulation firms are more likely to have powerful CEOs. In column (4) of Table 5, we include pay-for-performance sensitivities and all the CEO power variables in the same regression. The coefficients on *CEO_SENSITIVITY, CEO_PAYSLICE*, and *CEO_FOUNDER* continue to be significantly positive. *CFO_SENSITIVITY* becomes insignificantly associated with *MANIPULATION*, still consistent with H2b (CFO pressured). Among our control variables,

[28] *CFO_PPS_RATIO* also helps alleviate multicolinearity concerns about *CFO_SENSITIVITY* and *CEO_SENSITIVITY*.

Δ*EARNINGS* is statistically significant in the predicted directions, consistent with Dechow et al. (2008).

To examine the economic significance of our results on CEO power, we calculate the change in the probability of accounting manipulations when *CEO_PAYSLICE* increases from the first to the third quartile and when *CEO_FOUNDER*, increase from zero to one in column (4). An interquartile increase in *CEO_PAYSLICE* would raise the likelihood of accounting manipulations by 5.4 percent (not tabulated), while a change in *CEO_FOUNDER* from zero to one increases the likelihood of accounting manipulation by 15.2 percent. The economic impact of these variables is quite large, given that the average likelihood of having accounting manipulations is 35.1 percent (108/308) in our sample.

Overall, the above results show that the association between CEO power and accounting manipulations is both statistically and economically significant. Our results regarding CEO power are consistent with the finding in Dechow et al. (1996) that AAER firms are more likely to have a Chief Executive Officer who also serves as chairman of the board or founder of the company. We complement and extend Dechow et al. (1996) by providing evidence on how CEOs use their power to achieve earnings manipulations. We provide evidence that is consistent with the argument that CEOs likely exercise their power by pressuring CFOs, who are in charge of financial reporting, to inflate reported earnings.[29]

[Table 5]

4.3 CFO turnover

[29] We also examine the role of individual CFO characteristics in accounting manipulations such as CPA qualification, CFO's prior work experience, and age. On one hand, CFOs with CPA qualifications are expected to have better knowledge of professional ethics and the boundary of GAAP. They are likely to perceive higher litigation risk associated with accounting manipulations than CFOs without CPA qualifications, which might result in a lower likelihood of accounting manipulations by CFOs with CPA qualifications. On the other hand, CPA qualifications also indicate the ability to manage earnings using accounting shenanigans. Empirically, we find that firms with material accounting manipulations are more likely to have CFOs with CPA qualifications. We do not find CFOs' prior work experience or age to be related to the likelihood of accounting manipulations.

To test H4 regarding CFO turnover, we examine the relation between CFO turnover in the period prior to the accounting manipulations (recall, Hennes et al. (2008) examine CFO and CEO turnover in the periods after the accounting manipulations). We estimate the following regression equation:

$$CFO\_TURNOVER = \alpha_0 + \alpha_1 MANIPULATION + \alpha_2 ADJUSTED\ ROA + \alpha_3 ADJUSTED\ \Delta SALES + \alpha_4 ABNORMAL\ RETURN + \varepsilon \quad (2)$$

where *MANIPULATION* is equal to one if the firm is accused of accounting manipulations by the SEC and zero if the firm is in the control group. *CFO_TURNOVER* is an indicator variable, equal to one if there is CFO turnover during the three-year time period prior to the first manipulation year and zero otherwise.[30] Note that *CFO_TURNOVER* can be equal to one only when there is no change in CEO. As a result, this variable is not confounded by the associated CEO turnover. We do not distinguish between voluntary resignations and forced turnover, because both scenarios can suggest the consequences of saying no under CEOs pressure to participate in accounting manipulations. Under CFO as an instigator, manipulation firms are not expected to have higher CFO turnover than control firms (H4a), while under the alternative hypothesis (CFO pressured) where the CFO faces pressure from CEOs to manipulate, some CFOs will say no and thus CFO turnover is expected to be higher for manipulation firms (H4b). Accordingly, H4a predicts α_1 to be either negative or insignificant and H4b predicts α_1 to be significantly positive. Mian (2001) investigates the determinants of CFO turnover and finds that CFO turnover is negatively associated with firm performance, measured by operating return on assets, sales growth and stock returns. Thus, we include three control variables, *ADJUSTED*

[30] As robustness checks, we also measure *CFO_TURNOVER* as an indicator variable equal to one if there is CFO turnover during the two-year (one-year) period prior to the first manipulation year, and zero otherwise. The results are qualitatively similar when we use these two alternative *CFO_TURNOVER* measures.

ROA, *ADJUSTED* Δ*SALES*, and *ABNORMAL RETURN,* following Mian (2001), and predict that their coefficients are significantly negative.[31]

Table 6 presents the regression results. Referring to the first column of results, which do not include control variables, α_1 is positive and significant, suggesting that manipulation firms are more likely to have experienced CFO turnover in the three years prior to the manipulation. In the second column, we examine whether *MANIPULATION* continues to be positively associated with *CFO_TURNOVER* after including other determinants of CFO turnover. The coefficient on *MANIPULATION* remains positive and statistically significant (p-value = 0.066), consistent with H4b. The economic magnitude of α_1 is also substantial. For example, moving *MANIPULATION* from zero to one increases the likelihood of CFO turnover by 15.7 percent. All of the coefficients of the control variables are in the predicted direction, as in Mian (2001), and statistically significant under one-tailed tests except for *ABNORMAL RETURN*.

[Table 6]

4.4 Analysis based on AAER content

The previous sections provide indirect evidence on the relative importance of each explanation of accounting manipulations - CFO as the instigator versus CFO being acquiescent to CEO pressure. In this section, we adopt a different approach by using the discussion in AAERs to examine the role of CFOs and CEOs in accounting manipulations and the associated financial benefits.[32]

[31] Our control variables are based on prior research. We acknowledge the possibility that CFOs might leave the company because of his/her private information of expected future poor performance. Due to data limitations (i.e., reported earnings are misstated), we do not control for this possibility.

[32] Note that this analysis uses only the manipulation firms in which either CEOs or CFOs were charged by the SEC, resulting in a sample of 331 companies, 292 CFOs, and 227 CEOs (see Table 2 Panel A).

The analysis based on AAER content complements our previous analyses by providing more direct evidence on the role of CFOs in accounting manipulations and the associated financial benefit. The SEC usually issues an AAER at the completion of a significant investigation. An AAER typically provides a description of the alleged party's involvement in accounting manipulations and whether the SEC seeks disgorgement of gains from manipulations. This approach has the advantage of allowing us to use the detailed information or evidence that the SEC obtained during the investigation. The evidence accumulated by the SEC goes beyond publicly available data, and it seems reasonable to assume that the SEC's allegations are supported by the evidence they have accumulated. Consider the following two excerpts from the AAER No. 1763 regarding Chancellor Corporation and AAER No. 1816 regarding Measurement Specialties:

Excerpt 1: Chancellor Corporation

> The action … alleges that from 1998 through 2001, Brian Adley, Chancellor's former Chairman, CEO and controlling shareholder, orchestrated a scheme to inflate Chancellor's reported assets, revenue and profits using fabricated documents and fraudulent accounting .... The Commission charges that Adley caused Chancellor to file false financial statements in 1999 and 2000 by directing the wholesale fabrication of corporate documents, by instructing that the fabricated documents be given to the company's auditors, and by coordinating the filing of false financial statements with the Commission. Former officers Churchill, Volpe [CFO] and Ezrin allegedly participated in the scheme by assisting with the preparation of, and in some instances signing, false, fabricated or misleading financial documents.
>
> …
>
> In addition, the Commission seeks an order requiring Adley to disgorge at least $1.1 million in improper payments he caused Chancellor to make to an entity he controlled, and the value of a $3.71 million interest-free loan he improperly obtained by diverting proceeds of a business loan to Chancellor to his own account.

Excerpt 2: Measurement Specialties, Inc.:

> See the excerpt in the introduction.

The description in the first excerpt about Chancellor Corporation clearly suggests that the CEO of Chancellor is the instigator of the accounting manipulation and financially benefited from it. The second excerpt about Measurement Specialties Inc., on the other hand, suggests that the CFO instigates the accounting scheme and benefits from it through insider trading.

However, this content analysis of AAERs is also subject to a few limitations. First, the amount and format of information disclosed in the AAERs are at the SEC's discretion and likely rely on various factors (e.g., depth of SEC's investigation or the availability of evidence). Nevertheless, we believe this limitation does not introduce any systematic bias to our analysis of the difference between CEOs and CFOs. Second, this analysis is limited to CFOs and CEOs who are charged by the SEC. Not being charged by the SEC does not necessarily mean that CFOs or CEOs are not involved in accounting manipulations. We view AAER content analysis as a complement to our previous analyses.

We first examine the frequency with which the CEO and/or CFO are named as orchestrating the accounting manipulations. *ORCHESTRATE* equals one when the SEC uses words such as "orchestrate," "direct," or "order" to describe the executive's involvement in the accounting manipulations. *ORCHESTRATE* equals zero otherwise where the SEC usually uses words such as "participate in," "engage in," or "aid" or "reckless in not knowing" when describing executives' roles in accounting manipulations. We assume that the CEO who is described to have orchestrated the accounting schemes is likely to be the instigator. However, a CFO could be described to have orchestrated an accounting scheme when he actually just carried out the manipulation under CEO's pressure, which would introduce a bias against finding evidence suggesting CEO as an instigator. Thus CFO as orchestrator needs to be interpreted with caution.

Next, we examine the frequency with which the SEC describes the CEO and/or CFO as having received financial benefits from the accounting manipulations. The AAER disclosures provide a direct description of whether the executive benefited from manipulations financially (e.g., disgorgement of illegal gains, including performance bonuses and insider trading). Note that the information on financial benefit provided by the SEC would capture any form of financial benefit such as directly stealing corporate funds and covering it up by manipulating accounting statements; thus this approach has the advantage of going beyond data disclosed in public filings (i.e., compensation and insider trading). Therefore, *FINANCIAL BENEFIT* is equal to one when the AAER specifically mentions such financial benefits that the CEO or CFO has obtained from the manipulations, and zero otherwise.[33]

The results are reported in Table 7. The first two columns in Table 7 report the role of CFOs and CEOs, respectively, for the 188 companies of which both CFOs and CEOs are charged by the SEC. Among these firms, 17.55 percent of the CFOs are described as having orchestrated the accounting schemes. In contrast, the likelihood of orchestrating the manipulation is significantly higher for CEOs (31.91 percent).[34] The difference between CFO and CEO is significant at the one percent level based on a paired t-test. The third (fourth) column reports the results for the cases in which only the CFO (CEO) is charged. We find that *ORCHESTRATE* equals one only for 13.46 percent of the 104 CFOs charged, whereas 30.76 percent of the 39 CEOs charged appear to have orchestrated the accounting schemes. Again the difference is statistically significant.

[33] Our classification of CEOs and CFOs is similar to the approach used in Schrand and Zechman (2008). However, we focus on the difference between CEOs and CFOs, while they focus on all executives. We have a sample of 519 CEOs and CFOs, they have a sample of 96 executives.

[34] Among the executives with *ORCHESTRATE* equal to zero, only 5 CFOs and 2 CEOs are described to be "reckless in not knowing" about the manipulations.

Turning to the row that describes financial benefits, it appears that CEOs are more likely to have obtained financial benefits from the accounting manipulations than CFOs. When both the CEO and CFO are charged, 45.21 percent of CEOs have *FINANCIAL BENEFIT* equal to one, whereas only 36.17 percent of CFOs have financial benefits. The difference is significant at the one percent level. Interestingly, even when only the CFO was charged (104 CFOs), only 29.80 percent of them benefited financially. When only the CEO was charged, 46.15 percent of these CEOs benefited financially. The difference between CEO's and CFO's frequency of having financial benefits is statistically significant, suggesting that CFOs are less likely than CEOs to have instigated accounting manipulations for their immediate financial gains.

Finally, we examine the combination of *ORCHESTRATE* and *FINANCIAL BENEFIT*. We expect that an executive is more likely to be the instigator of the accounting manipulation when the SEC alleges him to have orchestrated the manipulation as well as to have benefited financially. The last row in Table 7 shows that the likelihood of CEOs having both *ORCHESTRATE* and *FINANCIAL BENEFIT* equal to one is significantly higher than that of CFOs (i.e., 7.45 percent for CFOs versus 17.02 percent for CEOs in the first two columns, and 7.69 percent for CFOs versus 17.95 percent for CEOs in the third and fourth columns).

Taken together, the analysis based on discussion in the AAERs suggests that CEOs are more likely to have orchestrated and benefited financially from the accounting manipulations than CFOs. This finding supports the conclusion of the analyses in previous sections. Again, our overall evidence is more consistent with the hypothesis that CFOs become involved in accounting manipulation under pressure from CEOs rather than being the instigator for immediate personal financial gains.

[Table 7]

5. Conclusion

CFOs are in charge of corporate financial reporting and thus play an important role in the financial reporting system. However, the role of CFOs has been understudied in past research. This paper investigates why CFOs become involved in material accounting manipulations. To address this research question, we examine two possible explanations. CFOs might instigate accounting manipulations for immediate personal financial gains, as reflected in their equity compensation. Alternatively, CFOs could manipulate the financial reports under pressure from CEOs.

Using a comprehensive sample of material accounting manipulations disclosed between 1982 and 2005, we investigate the costs and benefits associated with intentional financial misreporting for CFOs. Specifically, we find that CFOs are more likely to be charged by the SEC for accounting manipulations than CEOs, indicating a higher litigation risk for CFOs. This result combined with the finding in Hennes et al. (2008) that for intentional GAAP violations the CFO turnover rate is significantly higher than the CEO turnover suggests that CFOs face a higher cost than CEOs if discovered to be involved in accounting manipulations. We also find that CFOs' equity incentives (pay-for-performance sensitivity) are no different than those of the other non-CEO executives within the manipulating firms, and no higher than those of CFOs of non-manipulating firms. However, CEO equity incentives are higher for the manipulation firms than for the control firms. Moreover, we document that accounting manipulations are more likely when a company is run by a powerful CEO. CFO turnover is significantly higher within three years prior to the occurrences of material accounting manipulations for manipulation firms than control firms, consistent with CFOs facings costs (loss of job) for saying no to CEO pressure. Finally, our AAER context analyses suggest that CEOs of manipulation firms are more

likely than CFOs to be described to have orchestrated the manipulation and to be requested to disgorge financial gains from the manipulation. Taken together, our findings suggest that CFOs are more likely to become involved in material accounting manipulations because they succumb to CEO pressure rather than instigate the accounting manipulations for their own immediate financial benefit.

The findings of this study have important implications for current corporate governance reform. Researchers, practitioners, and regulators appear to have generally concluded that stock-based compensation, especially stock options, have provided managers with incentives to misstate accounting numbers. Our results suggest that re-designing compensation packages for CFOs is not necessarily the right remedy. Improving CFO independence by alleviating the pressure of CEOs on CFOs could be more critical to improving financial reporting quality. One possible way to achieve this would be to have boards or audit committees more involved in CFO performance evaluation and retention decisions (Matejka, 2007).

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Table 1
Panel A: Sample Selection

	Number of Firms	Number of Firm-years
Distinct firms mentioned in the AAERs from May 17th, 1982 through June 10th, 2005	896	-
Less: Firms unrelated to earnings manipulations	(219)	-
Less: Firms without CUSIP	(178)	-
Total distinct AAER firms with CUSIP	499	-
Less: Firm-years that only manipulated quarterly financial statements without affecting annual financials	(90)	-
Sample of firm-years with manipulated annual financial statements	409	767
Less: Firm-years without compensation data for either CEO or CFO	(323)	(637)
Sample of firm-years with compensation data for both CEO and CFO	86	130
Less: Firm-years without matched controls	(12)	(14)
Final sample of total AAER firm-year observations with CEO and CFO compensation data	74	116
Number of control firm-years	150	219

Table 1 (cont.): Panel B: Variable Definitions

Variable	*Definition*
MANIPULATION	Indicator variable equal to one for manipulation firm-years, zero otherwise.
LITIGATION RISK MEASURES	
CEO_CHARGED (CFO_CHARGED)	Indicator variable equal to one if the CEO (CFO) is mentioned by name as being charged in either litigation files or administrative proceeding files in the SEC's Accounting and Auditing Enforcement Releases.
CEO_ ADMINISTRATIVE PROCEEDING (CFO)	Indicator variable equal to one if the CEO (CFO) is mentioned by name as being charged in administrative proceeding files in the SEC's Accounting and Auditing Enforcement Releases, zero otherwise.
CEO_LITIGATION (CFO_LITIGATION)	Indicator variable equal to one if the name of the CEO (CFO) is mentioned in litigation files in the SEC's Accounting and Auditing Enforcement Releases, zero otherwise.
CFO TURNOVER MEASURES	
CFO_TURNOVER	Indicator variable equal to one if the CFO was appointed by the CEO during the three-year time period prior to the first accounting manipulation year, conditional on having no change in CEO; zero otherwise.
COMPENSATION MEASURES	
Pay-for-performance sensitivity	Pay-for-performance sensitivity is measured as the total change in value of the executive's stock, restricted stock, and stock option portfolio in response to a 1% change in the stock price (in $thousand), calculated following Core and Guay (2002).
CEO_SENSITIVITY	Log transformation of CEOs' total pay-for-performance sensitivity, defined as Log (1+*TOTAL SENSITIVITY*).
CFO_SENSITIVITY	Log transformation of CFOs' total pay-for-performance sensitivity, defined as Log (1+*TOTAL SENSITIVITY*).
OTHER_SENSITIVITY	Log transformation of total pay-for-performance sensitivity of executives other than CEOs and CFOs, defined as Log (1+*TOTAL SENSITIVITY*).
CFO_PPS_RATIO	*CFO_SENSITIVITY* as a percentage of the sum of *CEO_SENSITIVITY* and *CFO_SENSITIVITY*.
CEO POWER MEASURES	
CEO_PAYSLICE	The slice of the CEO's total compensation in total top five executives' compensation in year t after adjusting the number of executives disclosed in proxy statements if a firm discloses more or less than five executives. If there are less than five executives' compensation disclosed in a given year, we assume that the remaining top five undisclosed executives receive the same level of compensation as the lowest-paid executive among those disclosed in the proxy statements. If proxy statements disclose more than five executives in a given year, we keep the compensation for the top five executives.
CEO_CHAIRMAN	Indicator variable equal to one if CEO is also the chairman of board, zero otherwise.
CFO_PROMOTION	Indicator variable equal to one if the CFO is recruited by the same CEO as in the manipulation years, zero otherwise.

ADDITIONAL CONTROL VARIABLES	
ADJUSTED ROA	Return on assets [(data178)/data6] adjusted by 2-digit SIC industry median ROA in one year prior to CFO turnover year if the firm has CFO turnover, and in three years prior to the first manipulation year if the firm has no CFO turnover.
ADJUSTED ΔSALES	Change in total sales (data12) in one year prior to the CFO turnover/beginning total sales adjusted by 2-digit SIC industry median if the firm has CFO turnover, and change in total sales (data12) in three years prior to the first manipulation year/beginning total sales adjusted by 2-digit SIC industry median if the firm has no CFO turnover.
ABNORMAL RETURN	One-year cumulative return in one year prior to the CFO turnover adjusted by the value weighted return in the same period if there is CFO turnover, and one-year cumulative return in three years prior to the first manipulation year adjusted by the value weighted return in the same period if there is no CFO turnover.
ΔRECEIVABLES	ΔReceivables (DATA 2)/Average total assets
ΔINVENTORY	ΔInventory (DATA 3)/Average total assets
ΔCASH SALES	Percentage change in cash sales; cash sales is computed as [Sales(DATA 12)-ΔAR(DATA 2)]
ΔEARNINGS	[Earnings $_t$ (DATA 18)/Average total assets] – [Earnings $_{t-1}$ /Average total assets $_{t-1}$]
RSST_ACCRUALS	(ΔWC + ΔNCO + ΔFIN)/Average total assets, where WC = [CA (DATA 4) – CASH (DATA 1)] – [CL (DATA 5) – STD (DATA 34)]; NCO = [Assets (DATA 6) – CA (DATA 4) - LTI (DATA 32)] – [total Liabilities (DATA 181) – CL (DATA 5) – LTD (DATA 9)]; FIN = [STI (DATA 193) + LTI (DATA 32)] – [LTD (DATA 9) + STD (DATA 34) + PRE Stock (DATA 130)]
CFO CHARACTERISTICS MEASURES	
CPA	Indicator variable equal to one if the CFO has CPA qualification (a CFO who has worked at or above management level at an accounting firm but with missing CPA information is assumed to have CPA qualification), zero otherwise.
CFO_AGE	Age of CFO
CFO_EXPERIENCE	Indicator variable equal one if the CFO has worked as a CFO in other firms prior to joining the firm, zero otherwise.

Table 2
The likelihood of CFOs and CEOs being charged by the SEC

Panel A: The overall likelihood of CFOs and CEOs being charged by the SEC

	CFO_CHARGED = 0	*CFO_CHARGED = 1*	*Total*
CEO_CHARGED = 0	162 (32.86%)	**104 (21.10%)**	266 (53.96%)
CEO_CHARGED = 1	**39 (7.91%)**	188 (38.13%)	227 (46.04%)
Total	201 (40.77%)	292 (59.23%)	493 (100%)

Chi-Square McNemar's Test Statistic (S): 29.55 Pr > S: < 0.001

Panel B: The likelihood of CFOs and CEOs being issued an administrative proceeding by the SEC

	CFO_ADMINISTRATIVE PROCEEDING = 0	*CFO_ ADMINISTRATIVE PROCEEDING = 1*	*Total*
CEO_ ADMINISTRATIVE PROCEEDING = 0	162 (59.13%)	**74 (27.01%)**	236 (86.14%)
CEO_ ADMINISTRATIVE PROCEEDING = 1	**5 (1.82%)**	33 (12.04%)	38 (13.86%)
Total	167 (60.95%)	107 (39.05%)	274 (100%)

Chi-Square McNemar's Test Statistic (S): 60.27 Pr > S: < 0.001

Panel C: The likelihood of CFOs and CEOs being issued a litigation release by the SEC

	CFO_LITIGATION = 0	*CFO_LITIGATION = 1*	*Total*
CEO_LITIGATION = 0	162 (39.04%)	**63 (15.18%)**	225 (54.22%)
CEO_LITIGATION = 1	**34 (8.19%)**	156 (37.59%)	190 (45.78%)
Total	196 (47.23%)	219 (52.77%)	415 (100%)

Chi-Square McNemar's Test Statistic (S): 8.67 Pr > S: 0.003

The litigation risk analysis uses a total of 493 companies. Three companies were removed from the sample of 499 companies (as shown in Table 1 Panel A) because it was disclosed in the AAERs that these three companies do not have CFOs. Three companies were removed because the CEO and the CFO are the same person. Each panel presents the number of companies, the percentage in the parentheses, and the corresponding Chi-Square McNemar's test statistic. There are a total of 1581 AAERs associated with these 496 firms, issued by the SEC from May 17th, 1982 through June 10th, 2005. All variables are described in Table 1 Panel B.

Table 3
Descriptive statistics of pay-for-performance sensitivity

Panel A: Pay-for-performance sensitivity (in $thousand) of CFOs and other non-CEO executives within the manipulation firms

	Chief Financial Officer *CFO_SENSITIVITY*			Other Executives *OTHER_SENSITIVITY*			Paired t-test of mean differences
	N	Mean	Median	N	Mean	Median	t-statistic (*two-tailed P-value*)
Pay-for-performance sensitivity	130	146.289	6.989	130	136.414	12.790	0.348 *(0.728)*

Panel B: Pay-for-performance sensitivity (in $thousand) of manipulation firms and control firms

	Manipulation			**Non-manipulation**			t-test of mean differences
	N	Mean	Median	N	Mean	Median	t-statistic (*two-tailed P-value*)
CEO_SENSITIVITY	116	889.438	81.511	205	295.753	45.167	3.32 *(0.002)*
CFO_SENSITIVITY	116	83.157	7.231	205	42.792	7.601	0.38 *(0.708)*

All variables are described in Table 1 Panel B. The paired t-tests examine whether the average differences of CFO/others pairs are zero. This table presents the descriptive statistics for the unlogged values of the pay-for-performance sensitivity variables. There are 130 pairs for manipulation firm-year observations. For firms disclosing less than three other executives, the average compensations of other executives are adjusted using the lowest paid executive's compensation disclosed. Each of the continuous variables is winsorized at 1% and 99% to mitigate outliers. Two-tail *p*-values are reported.

Table 4
Panel A: Descriptive statistics of manipulation firms versus control sample

	Manipulation			**Non-manipulation**			t-test of mean differences
	N	Mean	Median	N	Mean	Median	t-statistic (*two-tailed P-value*)
CEO_PAYSLICE	116	0.380	0.356	219	0.340	0.335	2.52 *(0.012)*
CEO_CHAIRMAN	116	0.724	1.000	211	0.583	1.000	2.55 *(0.012)*
CEO_FOUNDER	112	0.357	0.000	211	0.223	0.000	2.61 *(0.10)*
Δ*RECEIVABLES*	116	0.036	0.029	219	0.025	0.013	1.45 *(0.146)*
Δ*INVENTORY*	115	0.027	0.012	219	0.017	0.004	1.47 *(0.144)*
Δ*CASH SALES*	111	0.375	0.157	219	0.254	0.134	1.40 *(0.162)*
Δ*EARNINGS*	116	-0.031	-0.006	219	-0.014	-0.002	-1.30 *(0.196)*
RSST_ACCRUALS	114	0.059	0.035	219	0.092	0.050	-1.49 *(0.136)*

All variables are described in Table 1 Panel B. The t-test of means uses the pooled method when the underlying variances are equal and the Satterthwaite method when they are unequal. There are a maximum of 116 manipulation firm-year observations and 219 control firm-year observations. Each of the continuous variables is winsorized at 1% and 99% to mitigate outliers. For ease of interpretation, *CEO_TENURE* is converted to an unlogged amount when presented above. Two-tail *p*-values are reported.

Table 4 (cont.): Panel B: Spearman/Pearson correlation

	MANIPU-LATION	*CEO_ SENSITIVITY*	*CFO_ SENSITIVITY*	*CEO_ PAYSLICE*	*CEO_ CHAIRMAN*	*CEO_ FOUNDER*	*ΔCASH SALES*	*ΔEARN-INGS*	*ΔINVEN-TORY*	*ΔRECEIVABLES*	*RSST_ ACCRUALS*
MANIPU-LATION		0.183	0.021	0.137	0.140	0.144	0.077	-0.071	0.080	0.079	-0.074
		(0.001)	*(0.707)*	*(0.012)*	*(0.011)*	*(0.010)*	*(0.163)*	*(0.194)*	*(0.143)*	*(0.147)*	*(0.176)*
CEO _SENSITIVITY	0.155		0.610	0.288	0.082	0.115	0.032	0.050	0.045	0.084	0.003
	(0.005)		*(<.0001)*	*(<.0001)*	*(0.143)*	*(0.041)*	*(0.576)*	*(0.373)*	*(0.425)*	*(0.131)*	*(0.956)*
CFO _SENSITIVITY	0.020	0.593		0.193	-0.058	-0.069	0.065	0.032	-0.003	0.072	0.108
	(0.715)	*(<.0001)*		*(0.001)*	*(0.305)*	*(0.223)*	*(0.252)*	*(0.569)*	*(0.952)*	*(0.200)*	*(0.054)*
CEO_ PAYSLICE	0.163	0.331	0.174		0.074	-0.093	-0.087	0.048	0.023	-0.035	-0.035
	(0.003)	*(<.0001)*	*(0.002)*		*(0.183)*	*(0.096)*	*(0.114)*	*(0.378)*	*(0.670)*	*(0.523)*	*(0.529)*
CEO_ CHAIRMAN	0.140	0.095	-0.048	0.139		0.114	0.043	-0.012	-0.032	-0.028	-0.116
	(0.011)	*(0.089)*	*(0.389)*	*(0.012)*		*(0.040)*	*(0.439)*	*(0.833)*	*(0.570)*	*(0.620)*	*(0.037)*
CEO_ FOUNDER	0.144	0.093	-0.049	-0.137	0.114		0.187	0.053	0.124	0.193	0.189
	(0.010)	*(0.097)*	*(0.388)*	*(0.014)*	*(0.040)*		*(0.001)*	*(0.339)*	*(0.027)*	*(0.001)*	*(0.001)*
ΔCASH SALES	0.055	0.045	0.017	-0.085	-0.013	0.309		0.126	0.156	0.127	0.206
	(0.319)	*(0.426)*	*(0.765)*	*(0.125)*	*(0.818)*	*<.0001*		*(0.022)*	*(0.005)*	*(0.022)*	*(0.000)*
ΔEARNINGS	-0.068	0.017	-0.041	0.021	-0.041	-0.028	0.089		0.087	0.161	0.163
	(0.214)	*(0.759)*	*(0.463)*	*(0.702)*	*(0.459)*	*(0.622)*	*(0.105)*		*(0.111)*	*(0.003)*	*(0.003)*
ΔINVENTORY	0.089	0.025	-0.006	0.022	-0.034	0.135	0.248	0.013		0.313	0.231
	(0.104)	*(0.656)*	*(0.911)*	*(0.694)*	*(0.543)*	*(0.015)*	*<.0001*	*(0.810)*		*<.0001*	*<.0001*
ΔRECEIVABLES	0.090	0.101	0.048	-0.056	-0.049	0.236	0.261	0.093	0.264		0.362
	(0.100)	*(0.069)*	*(0.393)*	*(0.309)*	*(0.373)*	*<.0001*	*<.0001*	*(0.088)*	*<.0001*		*<.0001*
RSST_ ACCRUALS	-0.046	0.045	0.083	-0.033	-0.132	0.208	0.372	0.074	0.287	0.379	
	(0.407)	*(0.425)*	*(0.140)*	*(0.551)*	*(0.017)*	*(0.000)*	*<.0001*	*(0.181)*	*<.0001*	*<.0001*	

There are a maximum of 330 observations. All variables are described in Table 1. Each of the continuous variables is winsorized at 1% and 99% to mitigate outliers. Spearman (Pearson) correlations are below (above) diagonal.

Table 5
Logistic regression of CEO Power on the probability of having material accounting manipulations

			Dependent Variable = *MANIPULATION*			
Independent Variables	Predicted Sign *(CFO as an instigator)*	Predicted Sign *(CFO pressured)*	Logit Estimate (*Z*) (1)	Logit Estimate (*Z*) (2)	Logit Estimate (*Z*) (3)	Logit Estimate (*Z*) (4)
INTERCEPT			-1.2547***	-0.3908	-2.2753***	-2.2753***
			(4.06)	(1.55)	(4.77)	(4.51)
CEO_SENSITIVITY	**-/0**	**+**	0.2240***			0.1539**
			(3.03)			(1.97)
CFO_SENSITIVITY	**+**	**-/0**	-0.1805*			-0.1164
			(1.71)			(1.09)
CFO_PPS_RATIO	**+**	**-/0**		-1.2824**		
				(2.19)		
CEO_PAYSLICE	**-/0**	**+**			2.5345***	1.8180*
					(2.62)	(1.66)
CEO_CHAIRMAN	**-/0**	**+**			0.4355	0.4121
					(1.43)	(1.33)
CEO_FOUNDER	**-/0**	**+**			0.7687**	0.6687*
					(2.02)	(1.77)
Control Variables						
Δ*CASH SALES*	+	+	0.2420	0.3603*	0.2258	0.2141
			(1.40)	(1.73)	(1.34)	(1.29)
Δ*EARNINGS*	**-**	**-**	-1.8790*	-2.3631*	-2.0625*	-2.1846*
			(1.86)	(1.87)	(1.74)	(1.85)
Δ*INVENTORY*	+	+	2.5950	1.0663	3.0917	2.8859
			(1.02)	(0.40)	(1.27)	(1.19)
Δ*RECEIVABLES*	+	+	2.0572	2.5423	2.0088	1.7993
			(0.88)	(1.02)	(0.80)	(0.72)
RSST_ACCRUALS	+	+	-0.9236	-0.8107	-1.2406*	-1.0074
			(1.32)	(1.09)	(1.75)	(1.41)
Number of Manipulation Obs			108	102	108	108
Number of Total Obs			313	269	314	308
Likelihood Ratio Chi-Square (p-value)			16.94 (0.018)	11.44 (0.076)	20.12 (0.010)	24.43 (0.007)

***, **, * indicate statistical significance at the 0.01, 0.05, 0.10 level, respectively, under two-tailed tests. The standard errors are clustered by firm. *MANIPULATION* is an indicator variable that is equal to one if the firm has manipulated its annual financial statements, and zero otherwise. All other variables are defined in Table 1 Panel B. Each of the continuous variables is winsorized at 1% and 99% to mitigate outliers.

Table 6
Analysis of CFO turnover prior to accounting manipulations

Independent Variables	Predicted Sign *(CFO as an instigator)*	Predicted Sign *(CFO pressured)*	**Dependent Variable = *CFO_TURNOVER*** Logit Estimate (X^2) (1)	Logit Estimate (X^2) (2)
INTERCEPT	?	?	-0.351* *(3.608)*	-0.404* *(3.448)*
MANIPULATION	**-/0**	**+**	**0.581*** ***(3.360)***	**0.649*** ***(3.358)***
ADJUSTED ROA	-	-		-1.734 *(2.048)*
ADJUSTED ΔSALES	-	-		-0.671 *(1.690)*
ABNORMAL RETURN	-	-		-0.092 *(0.422)*
Number of CFO Turnover Obs			84	64
Number of Total Observations			182	156
Likelihood Ratio Chi-Square			*3.390**	*9.555***

***, **, * indicate statistical significance at the 0.01, 0.05, 0.10 level, respectively, under two-tailed tests.
MANIPULATION is an indicator variable that is equal to one if the firm has manipulated its annual financial statements, and zero otherwise. All other variables are defined in Table 1 Panel B. Each of the continuous variables is winsorized at 1% and 99% to mitigate outliers.

Table 7
The role of and financial benefits to CFOs and CEOs in accounting manipulations based on AAER content analysis

	BOTH CFO AND CEO ARE CHARGED.					*ONLY CFO OR CEO IS CHARGED*				
	(1) ROLE OF CFO (N=188)		*(2) ROLE OF CEO (N=188)*			*(3) ROLE OF CFO (N=104)*		*(4) ROLE OF CEO (N=39)*		
	Number of Firms	*% of N*	*Number of Firms*	*% of N*	T-test Statistic	*Number of Firms*	*% of N*	*Number of Firms*	*% of N*	t-test Statistic
ORCHESTRATE =1	33	17.55%	60	31.91%	-4.009***	14	13.46%	12	30.76%	-2.11**
FINANCIAL BENEFIT=1	68	36.17%	85	45.21%	-2.847***	31	29.80%	18	46.15%	-1.84*
ORCHESTRATE =1 and FINANCIAL BENEFIT =1	14	7.45%	32	17.02%	-3.376***	8	7.69%	7	17.95%	-1.79*

There are a total of 1150 AAERs associated with 331 companies. *ORCHESTRATE* equals one when the SEC uses the words such as "orchestrate," "direct," "devise," "instruct" or "architect" to describe the executive's involvement in the accounting manipulations. *ORCHESTRATE* equals zero when the executive is described as having participated in or having been reckless in not knowing about the manipulations. In the discussion, the SEC usually uses words such as "participate in," "engage in," "help," and "carry on" when describing executives' roles in accounting manipulations; in addition, executives are sometimes described as having been "reckless in not knowing" about such manipulations. *FINANCIAL BENEFIT* is equal to one when the AAER specifically mentions financial benefits that the CEO or CFO has obtained from the manipulations, and zero otherwise.