Volume 29 (2) October 2022 ISSN 0216-423X (Print)
ISSN 2622-2667 (Online)

JABM
JOURNAL *of*
ACCOUNTING, BUSINESS and MANAGEMENT

AIMS AND SCOPE

Journal of Accounting, Business and Management (JABM) provides a scientific discourse about accounting, business, and management both practically and conceptually. The published articles at this journal cover various topics from the result of particular conceptual analysis and critical evaluation to empirical research. The journal is also interested in contributions from social, organization, and philosophical aspects of accounting, business and management studies. JABM goal is to advance and promote innovative thinking in accounting, business and management related discipline. The journal spreads recent research works and activities from academician and practitioners so that networks and new link can be established among thinkers as well as creative thinking and application-oriented issues can be enhanced. A copy of JABM style guidelines can be found inside the rear cover of the journal. The Journal of Accounting, Business and Management (JABM) is published twice a year that is in April and October of every year and sponsored by Malangkuçeçwara School of Economics (MCE) in Indonesia. It is listed in ULRICH'S Periodicals Directory of Accounting and Management Studies with ISSN No. 0216-423X (print) and listed in Australian Business Deans Council Journal Rankings List. It is also full indexed in EBSCO "Business Source Premier" databases. More information about JABM can be obtained by visiting the web site of the journal at (http://jabm.stie-mce.ac.id).

EDITORIAL ORGANIZATION

Editorial Address
STIE Malangkuçeçwara (Malangkuçeçwara School of Economics)
Malang 65142 – INDONESIA
Phone: 62 341 491813
Fax.: 62 341 495619
E-mail: jabm_int@stie-mce.ac.id

Journal of Accounting, Business and Management (JABM) vol. 29 no. 2 (2022) 22-42

Do CEOs Influence CFOs' Equity Incentives to Manage Earnings?

Ruonan Liu*

Abstract

This study examines whether CEOs' incremental equity incentives relative to CFOs (i.e., the gap between CEO equity incentives and CFO equity incentives) and CEO power constrain or exacerbate CFOs' equity incentives to manage earnings. In most companies, CEOs receive higher equity compensation than CFOs, which encourages CEOs to exert pressure on CFOs to engage in earnings management to improve the firm stock performance. I find no evidence that CEO incremental equity incentives or CEO power affect the association between CFOs' equity incentives and the absolute value of discretionary accruals. Moreover, I fail to find evidence that CEO incremental equity incentives relative to CFOs or CEO power have an impact on the likelihood of meeting or beating analysts' forecasts. In addition, I discover that CFOs' equity incentives relative to CFOs play an independent role in accruals management. However, CFOs' equity incentives mitigate real earnings management activities, which can help align the interests of CFOs with shareholders.

Keywords: earnings management, equity incentives, CFO, CEO power, CEO incremental equity incentives.

I. INTRODUCTION

A number of serious corporate frauds have drawn public attention to the question as to who are responsible for earnings management, CEOs, CFOs or both?[1] Extant literature has provided evidence that both CEOs' and CFOs' equity incentives[2] are positively associated with accruals management (Cheng & Warfield, 2005; Bergstresser & Philippon, 2006; and Jiang et al., 2010). In most companies, CEOs own more equity than CFOs and therefore may benefit more from earnings management. Moreover, CEOs can use their power to extract rents (Bebchuk et al., 2002).[3] In this study, I examine whether CEOs' incremental equity incentives relative to CFOs (i.e., the gap between CEO equity incentives and CFO equity incentives) and CEO power constrains or exacerbates CFOs' equity incentives to engage in accruals management. I also study whether CFOs' equity incentives impact real earnings management.

* Assistant professor. Eberhardt School of Business, University of the Pacific, Stockton, California. Phone: +1 209 932 3006. E-mail: rliu@pacific.edu. Webpage: https://business.pacific.edu/campus-directory/ruonan-liu.

[1] For example, the former CEO of WorldCom Bernie Ebbers and the former CEO of HealthSouth Richard Scrushy argued in their defenses that they knew nothing about the accounting frauds, however, the CFOs told a different story. They testified that they committed the fraud because they were pressured to do so by their CEOs. Those two CEOs face different fates. Ebbers was sentenced to 25 years in prison while Scrushy was found not guilty.

[2] Equity incentives of CFOs and CEOs are measured by the sensitivity of the value of CEOs' and CFOs' equity portfolio to changes in the firm's stock prices.

[3] Jiang et al. (2010) document that on average CFO equity incentives are only 63.1% of CEO equity incentives.

These questions are important for a number of reasons. First, since CFOs have significant control over a firm's financial reporting results (Geiger & North, 2006; Ge et al., 2010; and Ham et al., 2017), rewarding CFOs with equity incentive compensation may not be appropriate. Indjejikian and Matejka (2009) suggest that firms should deemphasize self-reported financial performance in CFO compensation to mitigate misreporting practices. Second, the literature provides inconsistent evidence on the relative roles of CEO and CFO equity incentives in earnings management. Specifically, Jiang et al. (2010) find that CFO equity incentives play a stronger role in accruals management than CEO equity incentives. In contrast, Feng et al. (2011) find that CFOs involved in material accounting manipulations were subject to pressure from the CEOs rather than simply seeking financial benefits from their equity incentives.[4] It's unclear whether the findings of Feng et al. (2011) apply to accruals management. Finally, the Sarbanes-Oxley act (SOX) has changed the role of CEOs and CFOs in determining financial reporting quality. According to SOX, both CEOs and CFOs are required to certify the accuracy and completeness of financial statements and may face criminal charges if the statements are fraudulent. Consequently, CEOs and CFOs should undertake similar level of financial oversight responsibility in the post SOX era.

Since CEOs can set the tone for financial reporting policies and influence decisions regarding the welfare of CFOs and other senior executives (Mian, 2001), I expect that CEOs with more equity holdings and powerful CEOs may pressure CFOs to manage earnings. Using data from 1993 to 2006, I fail to find evidence that the association between CFO equity incentives and discretionary accruals is affected by CEO incremental equity incentives or CEO power.[5] In addition, I observe that CEO incremental equity incentives or CEO power do not appear to affect the association between CFO equity incentives and meeting or beating analysts' forecasts. Finally, I find that CFO equity incentives are negatively associated with real earnings management, indicating that equity incentives mitigate real earnings management activities that could damage firms' future operating performance.

This study contributes to the literature in the following ways. First, this study sheds light on the relative roles of CEOs and CFOs in accruals management and real earnings management. I find that CEO incremental equity incentives or CEO power do not affect CFO equity incentives to manage earnings, suggesting that CFOs play an important and independent role in opportunistic reporting activities. Second, I document that CFO equity incentives continue to be positively associated with meeting or beating analysts' forecasts in the post- SOX period. This suggests that while CFO equity incentives to manage earnings were significantly mitigated by SOX, they were not completely eliminated. Finally, I find that while equity incentives may motivate CFOs to engage in more accruals management, they may mitigate real earnings management activities. Overall, my findings suggest that CFOs consider the trade-off between accruals and real earnings management. CFOs may have benefited from accruals management, but they appear to avoid real earnings management that could damage their firms' operating performance in the long run. These findings should be of interest to regulators,

[4] Jiang et al. (2010) and Feng et al. (2011) use substantially different samples and research designs. Feng et al. (2011) state that their results only apply to material accounting manipulation and may not generalize to other settings such as accruals management.

[5] I extend the test period to 2011 and find consistent results. Untabulated results are available upon request.

shareholders and managers when considering whether CFOs should be rewarded with equity-based compensation.

The remainder of the paper is organized as follows. Section 2 discusses the related literature and develops hypotheses. Section 3 presents the variable construction and empirical design. Section 4 reports and discusses the data and results. The final section concludes.

II. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

CEOs are the key decision makers and are generally regarded as the most powerful leader in any organization, and there is considerable accounting and economics literature focused on how the incentives of CEOs affect financial reporting quality. For instance, prior research finds that CEO equity incentives are associated with accruals management (Bergstresser & Philippon, 2006), the probability of restatement (Burns & Kedia, 2006), and the likelihood of meeting or beating analysts' forecasts (Cheng & Warfield, 2005).

Another stream of research suggests that CFOs typically oversee the firms' financial reporting process and therefore have the most direct impact on their firms' accounting-related decisions, such as choosing accounting methods and making accounting adjustments. Geiger and North (2006) show that discretionary accruals decrease significantly surrounding the appointment of a new CFO. Chava and Purnanandam (2010) find that CFO risk-decreasing incentives lead to more accruals management. Ge et al. (2010) provide evidence that accounting choices are influenced by CFO individual characteristics such as their dispositions, personal situations and prior experiences. Ham et al. (2017) study CEO and CFO signature size to measure narcissism and draw the conclusion that CFO narcissism rather than CEO narcissism is negatively associated with financial reporting quality.[6] Liu et al. (2020) document that CFOs have promotion-based incentives to manage earnings.

Jiang et al. (2010) and Feng et al. (2011) have examined the relative roles of CEOs and CFOs in firms' opportunistic reporting activities, and provided inconsistent findings. Jiang et al. (2010) find that the slope coefficient of regressing the absolute value of discretionary accruals on CFO equity incentives is nearly three times as that of CEO equity incentives. Moreover, they find that only CFO equity incentives are positively associated with meeting or beating analysts' forecasts. Feng et al. (2011) document that CFO equity incentives in the misconduct firms are not higher than those in non-misconduct firms, but that CEOs in misconduct firms have higher equity incentives and are more powerful than CEOs in non-misconduct firms.[7] They also find that the likelihood of being accused by the SEC of material accounting manipulations is positively associated with CEO equity incentives, but is not associated with CFO equity incentives. More importantly, the likelihood of being charged with material accounting manipulation by the SEC is positively associated with CEO power. Finally, Feng et al. (2011) find that firms with material accounting manipulations have significantly higher CFO turnover within the three years prior to the SEC filing charges. The authors conclude that CFOs do not manipulate earnings for immediate financial gains, but are coerced into doing so by CEOs.

---

[6] As measured by more earnings management, less timely loss recognition, weaker internal control quality, and a higher probability of restatements.

[7] Misconduct firms are firms that were subject to SEC enforcement actions for alleged accounting and/or auditing misconduct.

According to Aggarwal and Samwick (2003), senior executives may have different equity incentives because of their different responsibilities in the firm. They find that CEO incentives alone count 42% to 58% of the aggregated incentives of the top management team. Jiang et al. (2010) provide descriptive evidence that the average equity incentives ratio for CEOs is about 24%, while the same ratio for CFOs is only about 11%. In other words, CEOs would have benefited from earnings management much more than CFOs with other things being equal. If CEOs pressure CFOs to manage earnings due to their relatively larger equity holdings, I should observe that CEO incremental equity incentives constrains or exacerbates the association between CFO equity incentives and accruals management. Hence, I predict:

H_1: the association between CFO equity incentives and accruals management is affected by CEO incremental equity incentives.

The impact of CEO power on CFOs has been widely documented in accounting and finance literature. Previous studies (e.g. Finkelstein, 1992; Adams et al., 2005) find that powerful CEOs use their superior positions to influence important corporate decisions including CFO future career opportunities and compensation schemes. In addition, CEOs may create a corporate culture that overemphasizes the importance of meeting short-term accounting targets. CFOs, therefore, would lose financial benefits, or even their jobs, if they fail to meet the earnings targets that powerful CEOs demand (Hennes et al., 2008). Consistent with this argument, Feng et al. (2011) find that CFO turnover is significantly higher for firms that are charged with material accounting manipulation by the SEC. Their finding suggests that these CFOs may have lost their jobs for not aiding the CEOs in producing fraudulent financial statements. Hence, I predict that:

H_2: the association between CFO equity incentives and accruals management is affected by CEO power.

Previous studies on CEOs/CFOs and earnings management have largely focused on their roles in accruals management. Duellman et al. (2013) investigate the role of corporate monitoring intensity in the relation between CEO equity incentives and real earnings management. They find that the incentive alignment effect dominates the opportunistic financial reporting effect of CEO equity incentives for firms with high or moderate monitoring intensity (good governance). However, the opportunistic reporting effect mitigates, but does not completely offset, the incentive alignment effect for firms with low monitoring intensity. In other words, equity incentives can effectively reduce real earnings management especially when firms have high or moderate monitoring intensity.

To the extent that equity incentives can align the interests of management and shareholders and mitigate real earnings management, I expect to find a negative association between CFO equity incentives and real earnings management after controlling for CEO equity incentives. Moreover, CFOs may be subject to pressure from CEOs in engaging in or mitigating real earnings management. I also predict that CEO incremental equity incentives and power affect the association between CFO equity incentives and real earnings management behavior. Hence, I develop the following three sub-hypotheses (in alternative form):

H_{3a}: CFO equity incentives are negatively associated with real earnings management after controlling for CEO equity incentives.

H_{3b}: the association between CFO equity incentives and real earnings management is affected by CEO incremental equity incentives.

H_{3c}: the association between CFO equity incentives and real earnings management is affected by CEO power.

III. RESEARCH METHODOLOGY

3.1. CEO and CFO Equity Incentives

I calculate CEO and CFO equity incentives based on the method used by Bergstresser and Philippon (2006). I first calculate ONEPCT as the total change in value of the executive's stock and stock option portfolio in response to a one percent change in the stock price.[8] I calculate equity incentives for CEOs (Incent_CEO) and CFOs (Incent_CFO) separately. The difference between Incent_CEO and Incent_CFO is the CEO incremental equity incentives (Incent_GAP). Dummy_GAP is an indicator variable that is equal to 1 if Incent_GAP is above the year-industry median and 0 otherwise.

3.2. CEO Power

I measure CEO power in two ways, CEO pay slice and CEO and chairman duality. Bebchuk et al. (2011) find that CEO pay slice is negatively associated with firm value and performance, suggesting that CEO pay slice reflects CEO power to extract rents. Other research (e.g. Adams et al., 2005) suggests that CEOs who are also chairman of the board of directors can exert more influence over decision-making. I measure CEO pay slice as the percentage of the CEO's compensation out of the aggregate top five executives' total compensations. If ExecuComp discloses less than five executives, I assume the undisclosed executives receive the same pay as the lowest paid executive disclosed. CEO_Payslice is an indicator variable that equals 1 if the CEO pay slice is above the year-industry median and 0 otherwise. My second measure for CEO power is whether the CEO is also the chairman of the board of the directors. CEO_Chair is an indicator variable that equals 1 if the CEO is also the chairman of the board and 0 otherwise.

3.3. Earnings Management Measures

I use three measures of earnings management: discretionary accruals, the likelihood of meeting or beating analysts' forecasts, and real earnings management. CEOs and CFOs may play different roles in different aspects of earnings management.

3.3.1. Discretionary accruals

I use the modified Jones Model to measure discretionary accruals. Specifically, I first estimate the following model cross-sectionally by industry[9] and year. I require 10 observations for each year-industry combination.

$$TA_t = \alpha_1(1/A_{t-1}) + \alpha_2(\Delta REV_t - \Delta REC_t) + \alpha_3(PPE_t) + \varepsilon_t \quad \text{..... (2a)}$$

Where:

ΔREV_t is revenues in year t less revenues in year t-1 scaled by total assets at t-1,
ΔREC_t is net receivables in year t less net receivables in year t-1 scaled by total assets at t-1,
PPE_t is the gross property plants and equipment in year t scaled by total assets at t-1, and
A_{t-1} is total assets at the beginning of year t.

---

[8] **ONEPCT= 1% × Price × (# of Shares+# of Options×Option delta)** ..... (1a)
Where: Price is the company's share price and Option delta is the sensitivity of the value of stock options to change in a firm's stock price. I follow Core and Guay (2002) methodology to calculate Option delta separately for newly granted options, unexercisable options, and exercisable options. To remove size effects, I divide ONEPCT by total annual compensation:
Equity Incentive= ONEPCT/(ONEPCT + Salary + Bonus) ..... (1b)

[9] Industry is defined by two-digit SIC code.

Nondiscretionary accruals for each firm-year observation are calculated by applying industry and year-specific parameters α_1, α_2, and α_3 to the following model:

$$\mathbf{NDA_t = \alpha_1(1/A_{t-1}) + \alpha_2(\Delta REV_t - \Delta REC_t) + \alpha_3(PPE_t)} \quad \text{..... (2b)}$$

Discretionary accruals are then estimated by subtracting the predicted level of nondiscretionary accruals (NDA) from total accruals (TA) as

$$\mathbf{Discretionary\ accruals_t = TA_t - NDA_t} \quad \text{..... (2c)}$$

3.3.2. Likelihood of beating or meeting analysts' forecasts

Degeorge et al. (1999), among others, find empirical evidence that firms have incentives to report positive profits and increased earnings, and to meet or beat analysts' consensus forecasts. Cheng and Warfield (2005) find that CEOs with high equity incentives are more likely to report earnings that meet or just beat analysts' forecasts. Jiang et al. (2010) find that CFO equity incentives significantly dominate those of CEOs in explaining a firm's tendency to meet or beat analysts' forecasts.

I measure positive surprise as an indicator variable that is 1 if a firm's earnings per share is greater than or equals the most recent consensus forecast of earnings per share prior to earnings announcement, and zero otherwise.

3.3.3. Real earnings management

Roychowdhury (2006) provides evidence that managers engage in real earnings management to meet earnings targets and focuses on three manipulation methods: (1) accelerating sales by increasing price discounts, which will result in abnormally low cash flows in the current period; (2) overproducing to spread fixed costs over a larger number of units in order to report a lower cost of goods sold; and (3) reducing discretionary expenses that include advertising expense, research and development expense, and selling, general, and administrative expenses. Following Roychowdhury (2006), I estimate abnormal cash flows (RM_CFO), abnormal production costs (RM_Prod), and abnormal discretionary expenses (RM_DiscExp):

To calculate RM_CFO, I first estimate the following model for each industry and year:

$$\mathbf{CFO_t = \beta_1(1/Asset_{t-1}) + \beta_2 Sales_t + \beta_3 \Delta Sales_t + \varepsilon} \quad \text{..... (3a)}$$

Where:

CFO_t is the cash flows from operation in year t divided by lagged total assets,

$Asset_{t-1}$ is total assets in year t-1,

$Sales_t$ is total sales in year t scaled by lagged total assets, and

$\Delta Sales_t$ is the change in sales for year t scaled by lagged total assets.

Abnormal cash flows are the actual cash flows from operations minus the normal level of cash flows calculated using the estimated coefficients from equation (3a). I then multiply my measure of abnormal cash flows by negative one to get RM_CFO so that larger values of RM_CFO indicate income increasing real earnings management.

To calculate RM_Prod, I estimate the following model for each industry and year:

$$\mathbf{Prod_t = \beta_1(1/Asset_{t-1}) + \beta_2 Sales_t + \beta_3 \Delta Sales_t + \beta_3 \Delta Sales_{t-1} + \varepsilon} \quad \text{..... (3b)}$$

Where:

$Prod_t$ is the sum of cost of goods sold and the change in inventory from year t-1 to t, scaled by lagged total assets,

$Asset_{t-1}$ is total assets in year t-1,

$Sales_t$ is total sales in year t scaled by lagged total assets, and

$\Delta Sales_t$ and $\Delta Sales_{t-1}$ is the change in sales for year t and year t-1 respectively scaled by lagged total assets.

Abnormal production (RM_Prod) is the actual production costs minus the normal level of production costs calculated using the estimated coefficients from equation (3b).

To calculate RM_DiscExp, I estimate the following model for each industry and year:

$$\mathbf{DiscExp_t = \beta_1(1/Asset_{t-1}) + \beta_2 Sales_{t-1} + \varepsilon} \quad \text{..... (3c)}$$

Where:

$DiscExp_t$ is the sum of advertising expense, research and development expense, and selling, general and administrative expense in year t scaled by lagged total assets,

$Asset_{t-1}$ is total assets in year t-1, and

$Sales_{t-1}$ is total sales in year t-1 scaled by lagged total assets. Abnormal discretionary expenses are the actual discretionary expenses minus the normal level of discretionary expenses calculated using the estimated coefficients from equation (3c). As with RM_CFO, I multiply this measure by negative one to get RM_DiscExp so that larger values of RM_DiscExp indicate income increasing real earnings management.

I then follow Cohen et al. (2008) to construct an aggregate variable (RM_Proxy) combining the three individual real earnings management variables. Specifically, RM_Proxy is the sum of the three standardized real earnings management variables (RM_CFO, RM_Prod, and RM_DiscExp).

3.4. Models

To test whether the CEO incremental equity incentives affect the association between CFO equity incentives and the absolute value of discretionary accruals or real earnings management, I run the following regression:

$$\begin{aligned}\mathbf{|Discretionary\ Accruals|/RM\_Proxy =}\ & \\ & \beta_0+\beta_1 Incent\_CEO+\beta_2 Incent\_CFO+\beta_3 Dummy\_GAP+ \\ & \beta_4 Dummy\_GAP\times Incent\_CFO+\beta_5 Size+\beta_6 StdCashFlow+ \\ & \beta_7 StdRev+\beta_8 StdSalesGrowth+\beta_9 Oldfirm+\beta_{10} Leverage+ \\ & \beta_{11} MarketToBookDecile+Year+G\_Index+Exchange+ \\ & Industry+\varepsilon \quad \text{..... (4)}\end{aligned}$$

Where:

|Discretionary Accruals| is the absolute value of discretionary accruals,

RM_Proxy is the proxy for real earnings management,

Incent_CEO is the CEO equity incentive ratio,

Incent_CFO is the CFO equity incentive ratio,

Dummy_GAP is an indicator variable equal to 1 if the CEO incremental equity incentives, (Incent_CEO - Incent_CFO) is above the industry-year median and 0 otherwise. I predict that β_2 and β_4 will be positive and significant if H_1 holds.

The control variables are similar to those of Bergstresser and Philippon (2006). Size is the natural logarithm of lagged total assets. StdCashFlow is the standard deviation of cash flows from operations deflated by total assets over the current and previous four years. StdRev is the standard deviation of sales deflated by total assets over the current and previous four years. StdSalesGrowth is the standard deviation of sales growth over the current and previous four years. Oldfirm equals 1 if a firm is listed on compustat for more than 20 years, and 0 otherwise. Leverage is total liabilities deflated by total assets. MarketToBookDecile represents deciles of market value of assets divided by the book value of assets ranked within each year. Year represents year indicators. G_Index is the governance index described in Gomper et al. (2003). Exchange is an indicator for the stock exchange where the company is traded. Industry is the Fama and French (1997) industry indicator.

I examine whether CFO equity incentives to manage earnings are independent from CEO power using the following regression model:

$$|\textbf{Discretionary Accruals}| / \textbf{RM\_Proxy} = \beta_0+\beta_1\textbf{Incent\_CEO}+\beta_2\textbf{Incent\_CFO}+\beta_3\textbf{CEO\_Power}+\beta_4\textbf{CEO\_Power}\times\textbf{Incent\_CFO}+\beta_5\textbf{Size}+\beta_6\textbf{StdCashFlow}+\beta_7\textbf{StdRev}+\beta_8\textbf{StdSalesGrowth}+\beta_9\textbf{Oldfirm}+\beta_{10}\textbf{Leverage}+\beta_{11}\textbf{MarketToBookDecile}+\textbf{Year}+\textbf{G\_Index}+\textbf{Exchange}+\textbf{Industry}+\varepsilon \quad (5)$$

I measure CEO_Power in two ways, with CEO_Payslice and CEO_Chair. CEO_Payslice is an indicator variable that equals 1 if CEO's pay-slice is above the industry-year median, and 0 otherwise. CEO_Chair is an indicator variable that equals 1 if the CEO is also the chairman of the board of directors, and 0 otherwise. I expect β_2 and β_4 to be positive and significant under H_2.

To test whether the CEO incremental equity incentives and power affect the association between CFO equity incentives and the likelihood of meeting or beating analysts' forecasts, I employ the following two regressions:

$$\textbf{Prob(Positive Surprise)} = \beta_0+\beta_1\textbf{Incent\_CEO}+\beta_2\textbf{Incent\_CFO}+\beta_3\textbf{Dummy\_GAP}+\beta_4\textbf{Dummy\_GAP}\times\textbf{Incent\_CFO}+\beta_5\textbf{Size\_m}+\beta_6\textbf{Growth}+\beta_7\textbf{SalesGrowth}+\beta_8\textbf{NOA}+\beta_9\textbf{Shares}+\beta_{10}\textbf{Litigation}+\beta_{11}\textbf{ImplicitClaims}+\beta_{12}\textbf{AnalystFollowing}+\beta_{13}\textbf{ForecastDispersion}+\textbf{Year}+\varepsilon \quad (6)$$

$$\textbf{Prob(Positive Surprise)} = \beta_0+\beta_1\textbf{Incent\_CEO}+\beta_2\textbf{Incent\_CFO}+\beta_3\textbf{CEO\_Power}+\beta_4\textbf{CEO\_Power}\times\textbf{Incent\_CFO}+\beta_5\textbf{Size\_m}+\beta_6\textbf{Growth}+\beta_7\textbf{SalesGrowth}+\beta_8\textbf{NOA}+\beta_9\textbf{Shares}+\beta_{10}\textbf{Litigation}+\beta_{11}\textbf{ImplicitClaims}+\beta_{12}\textbf{AnalystFollowing}+\beta_{13}\textbf{ForecastDispersion}+\textbf{Year}+\varepsilon \quad (7)$$

As in the models above, I predict β_2 and β_4 to be positive and significant if H_1 and H_2 hold. My control variables are similar to Jiang et al. (2010). Size_m is natural logarithm of total assets at the end of year t; Growth is the book value of equity divided by the market value of equity at the beginning of year t; SalesGrowth is the sales in year t divided by sales in year t-1. NOA is net operating assets scaled by sales measured at the beginning of year t; Shares is the natural logarithm of common shares outstanding at the end of year t; Litigation is an indicator variable equal to 1 if the firm is in the pharmaceutical, biotechnology, computer, electronics, or retail industry, and 0 otherwise; ImplicitClaims equals 1 minus the ratio of gross PPE to total assets at the end of year t; AnalystFollowing is the number of analysts whose forecasts are included in the I/B/E/S consensus annual earnings forecast; ForecastDispersion is the coefficient of variation in the consensus forecast (the standard deviation divided by the mean of analyst forecasts); Year is year indicators.

I control for growth because the tendency to beat or meet analysts' forecasts is higher in high-growth firms (Skinner & Sloan, 2002). I include lagged net operating assets and shares outstanding because the likelihood of meeting or beating analysts' forecasts is negatively associated with net operating assets at the beginning of the year and positively associated with outstanding shares (Barton & Simko, 2002). I control for litigation risk and implicit claims as the tendency to meet or beat analysts' forecasts increases with litigation risk and implicit claims (Matsumoto, 2002). I control for the number of analysts and for forecast dispersion, because the tendency to meet or beat analysts' forecasts increases if there are more analysts following the firm or there is greater consensus among the analysts (Payne & Robb, 2000).

IV. DATA AND RESULTS

4.1. Data

The initial sample consists of all firms with data in the ExecuComp database during the period 1993–2006.[10] I identify CEOs using the ExecuComp's data item CEOANN= CEO. I identify CFOs using managers' titles in ExecuComp (data item "titleann") that includes any of the following phrases: CFO, chief financial officer, chief finance officer, chief accounting officer, treasurer, controller, finance, or vice president-finance. I delete observations where CEO and CFO is the same person. There are a total of 18,282 firm-years with compensation data available for both CEOs and CFOs during the test period. I delete 4,042 observations with missing compustat financial data and financial firms (SIC codes between 6000 and 6999) when calculating discretionary accruals. This leaves 14,240 firm-year observations for the accruals management test, 10,560 firm-year observations for the meet-or-beat analysts' forecasts test and 11,671 firm-year observations for the real earnings management test. I winzorize all of the continuous variables at their 1% and 99% distributions.

4.2. Test Results on the Impact of CEO's Incremental Equity Incentives and CEO Power on the Relation between CFO Equity Incentives and Accruals Management

Panel A of Table 1 reports the descriptive statistics of the main variables used in the regression (4). The mean of CEO equity holdings (Incent_CEO) is 0.231, which is roughly twice as large as the mean of CFO equity holdings (Incent_CFO) of 0.103. These equity incentives are economically significant: for a 1% increase in the firm's stock price, the value of shares and options held by CEO will increase by 23.1% while the value of shares and options held by CFO will increase by 10.3%.

Insert Table 1 (Panel A) here.

Panel B of Table 1 reports the Pearson correlations for the variables used in models (4) and (5). I find that the CFO and CEO equity incentive ratios are highly correlated as evidenced by a coefficient of 0.50. |Discretionary Accruals| is positively correlated with Incent_CEO (0.07) and Incent_CFO (0.07), providing univariate evidence that both CEO and CFO equity incentives are associated with firms' accruals management.

Insert Table 1 (Panel B, at the Appendix).

Table 2 reports regression analysis of absolute value of discretionary accruals on the interaction of CEO incremental equity incentives and CFO equity incentives. In the pre-SOX period, the coefficients of both Incent_CEO (coefficient= 0.03 $p < 0.01$ and coefficient= 0.05 $p < 0.01$) and Incent_CFO (coefficient=0.06 p= 0.01 and coefficient= 0.06 p= 0.02) are significantly positive, suggesting that both CEO and CFO equity incentives are associated with accruals management. In the post-SOX period, however, the coefficients on both Incent_CEO and Incent_CFO are statistically insignificant. These findings are consistent with previous studies (e.g. Cohen et al., 2008) that accrual management significantly reduced following SOX.[11]

---

[10] There are two reasons for the choice of this test period. First, I want to make my data comparable with Jiang et al. (2010) that use the same test period. Second, ExecuComp database was significantly modified after the passage of SFAS 123R that became effective for the reporting period that began after June 15, 2005. I extended the sample period to 2011 and find similar results (untabulated).

[11] The coefficients on the control variables are all in the same directions as Jiang et al. (2010).

Table 1
Descriptive Statistics

Panel A

Variables	N	Mean	Median	Std. Dev.	Lower Quartile	Upper Quartile
|Discretionary Accruals|	14,240	0.143	0.063	0.228	0.025	0.153
RM_Proxy	11,671	-0.257	-0.169	1.097	-0.799	0.334
Incent_CEO	14,240	0.231	0.152	0.224	0.073	0.310
Incent_CFO	14,240	0.103	0.070	0.106	0.033	0.135
Dummy_GAP	14,240	0.510	1.000	0.500	0.000	1.000
CEO_Payslice	14,221	0.510	1.000	0.500	0.000	1.000
CEO_Chair	14,233	0.638	1.000	0.481	0.000	1.000
Size	14,240	6.923	6.795	1.519	5.817	7.916
StdCashFlow	14,240	0.053	0.040	0.046	0.024	0.065
StdRev	14,240	0.159	0.115	0.142	0.066	0.203
StdSalesGrowth	14,240	0.248	0.140	0.359	0.074	0.274
Oldfirm	14,240	0.508	1.000	0.500	0.000	1.000
Leverage	14,240	0.521	0.530	0.222	0.364	0.664
MarketToBookDecile	14,240	5.361	6.000	2.238	4.000	7.000
Positive Surprise	10,560	0.715	1.000	0.452	0.000	1.000
Size_m	10,560	7.226	7.062	1.527	6.113	8.165
Growth	10,560	0.455	0.402	0.296	0.247	0.595
SalesGrowth	10,560	1.155	1.103	0.280	1.020	1.225
NOA	10,560	0.786	0.573	0.748	0.348	0.926
Shares	10,560	4.079	3.878	1.144	3.242	4.752
Litigation	10,560	0.265	0.000	0.441	0.000	1.000
ImplicitClaims	10,560	0.465	0.543	0.372	0.217	0.768
AnalystFollowing	10,560	10.267	8.000	6.990	5.000	14.000
ForecastDispersion	10,560	0.024	0.015	0.124	0.007	0.033

My main variable of interest is the interaction term Dummy_GAP× Incent_CFO. In column (2), the coefficient on Incent_CFO is significantly positive, while the coefficient on Dummy_GAP×Incent_CFO is insignificant in the pre-SOX period. In the post-SOX period, the coefficients on both Incent_CFO and Dummy_GAP×Incent_CFO are insignificant in column (4). Overall, I don't find evidence that CEO incremental equity incentives affect the relation between CFO equity incentives and accruals management.

Table 2
Regression Analysis of Absolute Value of Discretionary Accruals on the Interaction of CEO Incremental Equity Incentives and CFO Equity incentives

Variables	Predicted Signs.	Pre-SOX		Post-SOX	
		(1)	(2)	(3)	(4)
Intercept		0.27 (<0.01)	0.27 (<0.01)	0.29 (<0.01)	0.30 (<0.01)
Incent_CEO	+	0.03 (<0.01)	0.05 (<0.01)	0.02 (0.21)	0.01 (0.30)
Incent_CFO	+	0.06 (0.01)	0.06 (0.02)	0.01 (0.44)	-0.03 (0.50)
Dummy_GAP	?		-0.01 (0.08)		-0.01 (0.36)
Dummy_GAP×Incent_CFO	?		-0.04 (0.34)		0.09 (0.14)

To be continued Table 2.

Variables	Predicted Signs.	Pre-SOX		Post-SOX	
		(1)	(2)	(3)	(4)
Size	?	-0.01	-0.01	-0.01	-0.01
		(<0.01)	(<0.01)	(<0.01)	(<0.01)
StdCashFlow	?	0.31	0.32	0.38	0.38
		(<0.01)	(<0.01)	(<0.01)	(<0.01)
StdRev	?	0.08	0.08	0.03	0.03
		(<0.01)	(<0.01)	(0.29)	(0.30)
StdSalesGrowth	?	0.03	0.03	0.01	0.01
		(<0.01)	(<0.01)	(0.64)	(0.66)
Oldfirm	?	-0.01	-0.01	0.00	0.00
		(0.12)	(0.10)	(0.92)	(0.92)
Leverage	?	0.03	0.03	0.02	0.02
		(0.02)	(0.02)	(0.43)	(0.47)
MarketToBookDecile	?	0.00	0.00	-0.00	-0.00
		(0.08)	(0.06)	(0.52)	(0.53)
R^2		22.21%	22.31%	18.64%	18.67%
No. of Observations		8,383	8,383	5,857	5,857

Notes: the table presents OLS regression results of the following equation:

$$|\textbf{Discretionary Accruals}| = \beta_0+\beta_1\textbf{Incent\_CEO}+\beta_2\textbf{Incent\_CFO}+\beta_3\textbf{Dummy\_GAP}+\beta_4\textbf{Dummy\_GAP}\times\textbf{Incent\_CFO}+\beta_5\textbf{Size}+\beta_6\textbf{StdCashFlow}+\beta_7\textbf{StdRev}+\beta_8\textbf{StdSalesGrowth}+\beta_9\textbf{Oldfirm}+\beta_{10}\textbf{Leverage}+\beta_{11}\textbf{MarketToBookDecile}+\textbf{Year+G\_Index+Exchange+Industry}+\varepsilon \quad (4)$$

The p-values are presented in parentheses and are computed using heteroskedasticity robust standard errors, clustered by firm. The p-values are one-tailed for coefficients that have the predicted sign and two-tailed for those without a predicted sign. For the sake of brevity, I do not report coefficient estimates for year indicators, exchange indicators, G index dummies and the Fama and French (1997) industry indicators.

Table 3 presents the results of testing whether the relation between CFO equity incentives and accruals management varies with CEO power, measured by CEO pay slice and CEO and chair duality. In the pre-SOX period, I find that the coefficients on CEO_Power×Incent_CFO are consistently insignificant while the coefficients on Incent_CFO and Incent_CEO are statistically significant. In the post-SOX period, the coefficients on Incent_CEO, Incent_CFO and CEO_Power×Incent_CFO are all insignificant. Taken together, I do not find evidence that CEO incremental equity incentives affect CFO equity incentives to manage accruals.

Insert Table 3 here.

The p-values are presented in parentheses and are computed using heteroskedasticity robust standard errors, clustered by firm. The p-values are one-tailed for coefficients that have the predicted sign and two-tailed for those without a predicted sign. For the sake of brevity, I do not report coefficient estimates for year indicators, exchange indicators, G index dummies and the Fama and French (1997) industry indicators.

Table 3
Regression Analysis of Discretionary Accruals on the Interaction of CEO Power and CFO Equity Incentives

Variables	Pred. Signs.	Pre-SOX		Post-SOX	
		CEO_ Payslice	CEO_ Chair	CEO_ Payslice	CEO_ Chair
Intercept		0.27 (<0.01)	0.27 (<0.01)	0.29 (<0.01)	0.30 (<0.01)
Incent_CEO	+	0.03 (0.01)	0.02 (0.02)	0.01 (0.22)	0.02 (0.13)
Incent_CFO	+	0.05 (0.06)	0.09 (0.01)	0.00 (0.49)	-0.06 (0.28)
CEO_Power	?	-0.00 (0.54)	0.01 (0.03)	0.00 (0.92)	-0.02 (0.03)
CEO_Power ×Incent_CFO	?	0.02 (0.60)	-0.04 (0.32)	0.01 (0.91)	0.11 (0.12)
Size	?	-0.01 (<0.01)	-0.01 (<0.01)	-0.01 (<0.01)	-0.01 (<0.01)
StdCashFlow	?	0.30 (<0.01)	0.32 (<0.01)	0.38 (<0.01)	0.39 (<0.01)
StdRev	?	0.08 (<0.01)	0.08 (<0.01)	0.03 (0.29)	0.03 (0.33)
StdSalesGrowth	?	0.03 (<0.01)	0.03 (<0.01)	0.01 (0.67)	0.01 (0.70)
Oldfirm	?	-0.01 (0.14)	-0.01 (0.11)	0.00 (0.91)	0.00 (0.88)
Leverage	?	0.03 (0.01)	0.03 (0.02)	0.02 (0.45)	0.02 (0.37)
MarketToBook-Decile	?	0.00 (0.10)	0.00 (0.09)	-0.00 (0.56)	-0.00 (0.56)
R^2		22.12%	22.26%	18.68%	18.72%
No. of Observations		8,374	8,381	5,847	5,852

Notes: the table presents OLS regression results of the following equation:

$$|\text{Discretionary Accruals}| = \beta_0+\beta_1\text{Incent\_CEO}+\beta_2\text{Incent\_CFO}+\beta_3\text{CEO\_Power}+\beta_4\text{CEO\_Power}\times\text{Incent\_CFO}+\beta_5\text{Size}+\beta_6\text{StdCashFlow}+\beta_7\text{StdRev}+\beta_8\text{StdSalesGrowth}+\beta_9\text{Oldfirm}+\beta_{10}\text{Leverage}+\beta_{11}\text{MarketToBookDecile}+\text{Year}+\text{G\_Index}+\text{Exchange}+\text{Industry}+\varepsilon \quad (5)$$

4.3. Test Results on the Impact of CEO Incremental Equity Incentives and CEO Power on the Relation between CFO Equity Incentives and Meeting or Beating Analysts' Forecasts

Table 4 presents the Pearson correlations of the variables used in meeting or beating analysts' forecasts analysis. The correlation between the CFO and CEO equity incentive ratios is 0.48. Positive Surprise is positively correlated with Incent_CEO (0.06) and Incent_CFO (0.10), suggesting that both CEO and CFO equity incentives are associated with the likelihood of beating or meeting analysts' consensus forecasts.

Insert Table 4 here (at the Appendix).

Table 5 reports the logistic regression results from estimating the relation between beating or meeting analysts' forecasts and the equity incentives of CEOs and CFOs, and how this relation varies with CEO incremental equity incentives. In the pre-SOX period,

the coefficients on Incent_CFO is significantly positive (coefficient=1.49 p < 0.01 and coefficient=1.36 p < 0.01) while the coefficient on Incent_CEO is insignificant. In the post- SOX period, the coefficient on Incent_CFO (coefficient=1.03 p = 0.01 and coefficient=1.06 p = 0.03) is significantly positive (coefficient=1.03 p = 0.01 and coefficient=1.06 p = 0.03) while the coefficient on Incent_CEO is insignificant. These results indicate that CFO equity incentives play a more important role in meeting or beating analysts' forecasts than CEO equity incentives.

Table 5

Logistic Analysis of the Likelihood of Meeting or Beating Analyst Forecasts on the Interaction of the Equity Incentive Gap and CFOs' Equity Incentive

Variables	Predicted Signs	Pre-SOX		Post-SOX	
		(1)	(2)	(3)	(4)
Intercept		0.32	0.33	-0.09	-0.09
		(0.25)	(0.24)	(0.79)	(0.79)
Incent_CEO	+	-0.18	-0.29	0.04	-0.04
		(0.34)	(0.20)	(0.42)	(0.86)
Incent_CFO	+	1.49	1.36	1.03	1.06
		(<0.01)	(<0.01)	(<0.01)	(0.03)
Dummy_GAP	?		0.02		0.04
			(0.84)		(0.75)
Dummy_GAP×Incent_CFO	?		0.46		0.13
			(0.50)		(0.87)
Size_m	?	0.08	0.08	-0.01	-0.02
		(0.08)	(0.08)	(0.78)	(0.77)
Growth	-	-0.19	-0.19	-0.30	-0.30
		(0.06)	(0.06)	(0.01)	(0.01)
SalesGrowth	+	0.51	0.51	0.48	0.48
		(<0.01)	(<0.01)	(<0.01)	(<0.01)
NOA	-	-0.18	-0.18	-0.22	-0.22
		(<0.01)	(<0.01)	(<0.01)	(<0.01)
Shares	?	-0.13	-0.13	0.06	0.05
		(0.04)	(0.04)	(0.45)	(0.45)
Litigation	?	0.11	0.11	0.25	0.25
		(0.18)	(0.17)	(0.01)	(0.01)
ImplicitClaims	+	0.08	0.09	0.50	0.50
		(0.19)	(0.17)	(<0.01)	(<0.01)
AnalystFollowing	+	0.02	0.02	0.03	0.03
		(<0.01)	(<0.01)	(<0.01)	(<0.01)
ForecastDispersion	-	-0.64	-0.65	-0.07	-0.07
		(<0.01)	(<0.01)	(0.42)	(0.42)
Generalized pseudo R^2		2.93%	2.95%	4.00%	4.00%
No. of Observations		5,755	5,755	4,805	4,805

Notes: this table presents logistic regression results of the following equation:

$$\textbf{Prob(Positive surprise =1)}= \beta_0+\beta 1\textbf{Incent\_CEO}+\beta_2\textbf{Incent\_CFO}+\beta_3\textbf{Dummy\_GAP}+\beta_4\textbf{Dummy\_GAP}\times\textbf{Incent\_CFO}+\beta_5\textbf{Size}+\beta_6\textbf{Growth}+\beta_7\textbf{SalesGrowth}+\beta_8\textbf{NOA}+\beta_9\textbf{Shares}+\beta_{10}\textbf{Litigation}+\beta_{11}\textbf{ImplicitClaims}+\beta_{11}\textbf{ImplicitClaims}+\beta_{12}\textbf{AnalystFollowing}+\beta_{13}\textbf{ForecastDispersion}+\textbf{Year}+\varepsilon \quad (6)$$

The p-values are presented in parentheses and are computed using heteroskedasticity robust standard errors, clustered by firm. The p-values are one-tailed for coefficients that have the predicted sign and two-tailed for those without a predicted sign. For the sake of brevity, I do not report coefficient estimates for year indicators.

Table 6 presents the results of testing whether the relation between the equity incentives of CFOs and meeting or beating analysts' forecasts varies with CEO power. My main variable of interest is the interaction term CEO_Power×Incent_CFO. In both the pre-SOX and post-SOX periods, I find that the coefficient of CEO_Power×Incent_CFO is consistently insignificant, indicating that CEO power does not affect the relation between CFO equity incentives and meeting or beating analyst forecasts. I, however, find that the coefficient of Incent_CFO is statistically significant while Incent_CEO is never significant in both pre- and post- SOX periods after controlling for CEO power and CEO_Power×Incent_CFO. SOX appears to have curtailed the positive association between CEO/CFO equity incentives but failed to mitigate the positive association between CFO equity incentives and meeting and beating analysts' forecasts.

Table 6

Logistic Analysis of the Likelihood of Meeting or Beating Analyst Forecasts on the Interaction of CEO Power and CFOs' Equity Incentives

Variables	Predicted Signs	Pre-SOX		Post-SOX	
		CEO_ Payslice	CEO_ Chair	CEO_ Payslice	CEO_ Chair
Intercept		0.26	0.29	-0.12	-0.08
		(0.34)	(0.30)	(0.71)	(0.82)
Incent_CEO	+	-0.17	-0.19	0.04	-0.04
		(0.37)	(0.31)	(0.43)	(0.86)
Incent_CFO	+	1.62	1.73	0.81	0.94
		(<0.01)	(<0.01)	(0.08)	(0.06)
CEO_Power	?	0.09	0.07	0.07	0.17
		(0.27)	(0.47)	(0.52)	(0.11)
CEO_Power×Incent_ CFO	?	-0.25	-0.34	0.43	0.30
		(0.71)	(0.66)	(0.58)	(0.68)
Size_m	?	0.08	0.07	-0.02	-0.04
		(0.07)	(0.09)	(0.75)	(0.48)
Growth	-	-0.19	-0.18	-0.30	-0.29
		(0.06)	(0.06)	(0.01)	(0.02)
SalesGrowth	+	0.50	0.51	(0.48)	0.47
		(<0.01)	(<0.01)	(<0.01)	(<0.01)
NOA	-	-0.18	-0.18	-0.23	-0.21
		(<0.01)	(<0.01)	(<0.01)	(<0.01)
Shares	?	-0.14	-0.13	0.06	0.07
		(0.03)	(0.04)	(0.42)	(0.34)
Litigation	?	0.11	0.11	0.25	0.25
		(0.19)	(0.17)	(0.01)	(0.01)
ImplicitClaims	+	0.09	0.09	0.49	0.51
		(0.17)	(0.18)	(<0.01)	(<0.01)
AnalystFollowing	+	0.02	0.02	0.03	0.03
		(<0.01)	(<0.01)	(<0.01)	(<0.01)
ForecastDispersion	-	-0.66	-0.64	-0.12	-0.07
		(<0.01)	(<0.01)	(0.37)	(0.43)
Generalized Pseudo R^2		2.99%	2.94%	4.04%	4.14%
No. of Observations		5,747	5,755	4,794	4,798

Notes: this table presents logistic regression results of the following equation:

$$\text{Prob(Positive surprise =1)} = \beta_0+\beta_1\text{Incent\_CEO}+\beta_2\text{Incent\_CFO}+\beta_3\text{CEO\_Power}+\beta_4\text{CEO\_Power}\times\text{Incent\_CFO}+\beta_5\text{Size}+\beta_6\text{Growth}+\beta_7\text{SalesGrowth}+\beta_8\text{NOA}+\beta_9\text{Shares}+\beta_{10}\text{Litigation}+\beta_{11}\text{ImplicitClaims}+\beta_{12}\text{AnalystFollowing}+\beta_{13}\text{ForecastDispersion}+\text{Year}+\varepsilon \quad (7)$$

The p-values are presented in parentheses and are computed using heteroskedasticity robust standard errors, clustered by firm. The p-values are one-tailed for coefficients that have the predicted sign and two-tailed for those without a predicted sign. For the sake of brevity, I do not report coefficient estimates for year indicators.

Overall, results reported in Tables 5 and 6 indicate that CFO equity incentives are positively associated with beating or meeting analyst forecasts. Moreover, CEO incremental equity incentives and power do not affect beating or meeting analysts' forecasts. My findings are robust in both the pre- and post-SOX periods and suggest that CFOs are not subject to the pressure from the CEOs and they play an independent and important role in opportunistic reporting activities due to their own equity interests in their firms.

4.4. Test Results on the Impact of CEO Incremental Equity Incentives and CEO Power on the Relation between CFO Equity Incentives and Real Earnings Management

Table 7 presents the results of testing the effect of CEO incremental equity incentives on the association between CEO and CFO equity incentives and real earnings management. In both the pre- and post-SOX periods, the coefficient on Incent_CFO is significantly negative (ranging from -0.46 to -0.61 and p-value ranging from < 0.01 to = 0.07), indicating that CFO equity incentives mitigate CFOs' real earnings management activities. The coefficient on Dummy_GAP×Incent_CFO is insignificant, indicating that CEO incremental incentives do not impact the association between CFO equity incentives and real earnings management

Table 7
Regression Analysis of Real Earnings Management on the Interaction of the Equity Incentive Gap and CFO Equity Incentives

Variables	Predicted Signs	Pre-SOX			Post-SOX		
		(1)	(2)	(3)	(1)	(2)	(3)
Intercept		-0.06	-0.14	-0.16	0.10	0.05	0.04
		(0.80)	(0.56)	(0.51)	(0.68)	(0.84)	(0.86)
Incent_CEO	?	-0.01	0.08	0.27	-0.15	-0.07	-0.11
		(0.89)	(0.45)	(0.02)	(0.20)	(0.58)	(0.44)
Incent_CFO	?		-0.60	-0.61		-0.61	-0.46
			(0.01)	(0.02)		(<0.01)	(0.07)
Dummy_GAP	?			-0.09			0.06
				(0.09)			(0.28)
Dummy_GAP× Incent_CFO	?			-0.37			-0.24
				(0.31)			(0.46)
Size	?	0.03	0.04	0.04	0.03	0.04	0.04
		(0.24)	(0.09)	(0.09)	(0.14)	(0.04)	(0.04)
StdCashFlow	?	0.08	0.09	0.09	-1.34	-1.37	-1.37
		(0.90)	(0.89)	(0.89)	(0.04)	(0.04)	(0.04)
StdRev	?	1.45	1.46	1.47	1.01	1.00	1.00
		(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
StdSales-Growth	?	-0.04	-0.03	-0.02	0.09	0.10	0.10
		(0.56)	(0.69)	(0.74)	(0.37)	(0.34)	(0.34)

To be continued Table 7.

Variables	Predicted Signs	Pre-SOX			Post-SOX		
		(1)	(2)	(3)	(1)	(2)	(3)
Oldfirm	?	0.04 (0.50)	0.03 (0.58)	0.03 (0.64)	0.04 (0.42)	0.04 (0.49)	0.04 (0.48)
Leverage	?	0.63 (<0.01)	0.60 (<0.01)	0.60 (<0.01)	0.33 (<0.01)	0.30 (0.02)	0.30 (0.02)
MarketToBook-Decile	?	-0.15 (<0.01)	-0.14 (<0.01)	-0.14 (<0.01)	-0.15 (<0.01)	-0.14 (<0.01)	-0.14 (<0.01)
R^2		29.48%	29.67%	29.87%	29.06%	29.30%	29.33%
No. of Observations		6,734	6,734	6,734	4,937	4,937	4,937

Notes: this table presents OLS regression results of the following equation:

$$|RM\_Proxy| = \beta_0+\beta_1 Incent\_CEO+\beta_2 Incent\_CFO+\beta_3 Incent\_GAP+\beta_4 Incent\_GAP\times Incent\_CFO+\beta_5 Size+\beta_6 StdCashFlow+\beta_7 StdRev+\beta_8 StdSalesGrowth+\beta_9 Oldfirm+\beta_{10} Leverage+\beta_{11} MarketToBookDecile+Year+G\_Index+Exchange+Industry+\varepsilon \quad (4)$$

The p-values are presented in parentheses and are computed using heteroskedasticity robust standard errors, clustered by firm. The p-values are one-tailed for coefficients that have the predicted sign and two-tailed for those without a predicted sign. For the sake of brevity, I do not report coefficient estimates for year indicators, exchange indicators, G index dummies and the Fama and French (1997) industry indicators.

Table 8 presents results regarding the effect of CEO power on the association between CEO and CFO equity incentives and real earnings management. When using CEO payslice and CEO and Chairman duality to measure CEO power, I find that the coefficient on Incent_CFO is significantly negative (ranging from -0.50 to -0.81 and p-value ranging from < 0.01 to = 0.11) in both the pre-SOX and the post-SOX periods after controlling for CEO power. I also observe that the coefficient on CEO_Payslice×Incent_CFO is insignificant in both test periods. These findings suggest that CEO power does not affect the negative association between CFO equity incentives and real earnings management.

Table 8
Regression Analysis of Real Earnings Management on the Interaction of CEO Power and CFO Equity Incentives

Variables	Predicted Signs	Pre-SOX		Post-SOX	
		CEO_ Payslice	CEO_ Chair	CEO_ Payslice	CEO_ Chair
Intercept		-0.16 (0.51)	-0.15 (0.56)	0.03 (0.89)	0.07 (0.78)
Incent_CEO	?	0.09 (0.41)	0.07 (0.53)	-0.07 (0.56)	-0.07 (0.57)
Incent_CFO	?	-0.66 (0.02)	-0.58 (0.11)	-0.50 (0.04)	-0.81 (0.01)
CEO_Power	?	0.05 (0.20)	0.02 (0.66)	0.04 (0.39)	-0.04 (0.49)
CEO_Power×Incent_CFO	?	0.09 (0.77)	-0.02 (0.96)	-0.21 (0.46)	0.34 (0.32)
Size	?	0.04 (0.09)	0.04 (0.10)	0.04 (0.04)	0.04 (0.04)

To be continued Table 8.

Variables	Predicted Signs	Pre-SOX		Post-SOX	
		CEO_ Payslice	CEO_ Chair	CEO_ Payslice	CEO_ Chair
StdCashFlow	?	0.10 (0.88)	0.10 (0.88)	-1.36 (0.04)	-1.37 (0.03)
StdRev	?	1.46 (<0.01)	1.46 (<0.01)	0.99 (<0.01)	0.10 (<0.01)
StdSalesGrowth	?	-0.03 (0.69)	-0.03 (0.69)	0.09 (0.36)	0.09 (0.35)
Oldfirm	?	0.03 (0.63)	0.03 (0.59)	0.03 (0.51)	0.04 (0.50)
Leverage	?	0.59 (<0.01)	0.60 (<0.01)	0.30 (<0.02)	0.30 (<0.02)
MarketToBookDecile	?	-0.15 (<0.01)	-0.14 (<0.01)	-0.14 (<0.01)	-0.14 (<0.01)
R^2		29.77%	29.68%	29.31%	29.27%
No. of Observations		6,728	6,732	4,927	4,932

Notes: this table presents OLS regression results of the following equation:

$$|\text{RM\_Proxy}| = \beta_0+\beta_1\text{Incent\_CEO}+\beta_2\text{Incent\_CFO}+\beta_3\text{CEO\_Power}+\beta_4\text{CEO\_Power}\times\text{Incent\_CFO}+\beta_5\text{Size}+\beta_6\text{StdCashFlow}+\beta_7\text{StdRev}+\beta_8\text{StdSalesGrowth}+\beta_9\text{Oldfirm}+\beta_{10}\text{Leverage}+\beta_{11}\text{MarketToBookDecile}+\text{Year}+\text{G\_Index}+\text{Exchange}+\text{Industry}+\varepsilon \quad (5)$$

The p-values are presented in parentheses and are computed using heteroskedasticity robust standard errors, clustered by firm. The p-values are one-tailed for coefficients that have the predicted sign and two-tailed for those without a predicted sign. For the sake of brevity, I do not report coefficient estimates for year indicators, exchange indicators, G index dummies and the Fama and French (1997) industry indicators.

V. CONCLUSION AND SUGGESTIONS

This study examines whether CEO incremental equity incentives and CEO power affect the association between CFO equity incentives and earnings management through accruals and real activities. I find that CFO equity incentives are positively associated with the absolute value of discretionary accruals in the pre-SOX period and meeting or beating analysts' forecasts in both the pre- and post- SOX periods. I find no evidence, however, that CEO incremental equity incentives or CEO power affects the association between CFO equity incentives and accruals management. These findings suggest that CFO equity incentives play an independent role in opportunistic reporting activities.

I also examine the relative roles of CEO and CFO equity incentives in real earnings management and find that only CFO equity incentives are negatively associated with real earnings management. Neither CEO incremental equity incentives nor CEO power appears to have any effect on this association. In sum, equity incentives motivate CFOs to engage in more accruals management, they mitigate real earnings management activities. Given the debate on whether CFOs should be rewarded with equity compensation, my findings should be of interest to shareholders, managers and regulators.

REFERENCES

Adams, R. B., Almeida, H., & Ferreira, D. (2005, August). Powerful CEOs and their impact on corporate performance. *Review of Financial Studies*, *18*(4), 1403-1432. Https://doi.org/10.1093/rfs/hhi030.

Aggarwal, R. K., & Samwick, A. A. (2003, August). Performance incentives within firms: The effect of managerial responsibility. *The Journal of Finance*, *58*(4), 1613-1650. Https://www.jstor.org/stable/3648223.

Barton, J., & Simko, P. J. (2002). The balance sheet as an earnings management constraint. *The Accounting Review*, *77*(S-1), 1-27. Https://www.jstor.org/stable/3203322.

Bebchuk, L. A., Cremers, K. M., & Peyer, U. C. (2011, October). The CEO pay slice. *Journal of Financial Economics*, *102*(1), 199-221. Https://doi.org/10.1016/j.jfineco.2011.05.006.

Bebchuk, L. A., Fried, J., & Walker, D. (2002). Managerial power and rent extraction in the design of executive compensation. *The University of Chicago Law Review*, *69*(3), 751-846. Https://www.jstor.org/stable/1600632.

Bergstresser, D., & Philippon, T. (2006, June). CEO incentives and earnings management. *Journal of Financial Economics*, *80*(3), 511–529. Https://doi.org/10.1016/j.jfineco.2004.10.011

Burns, N., & Kedia, S. (2006, January). The impact of performance-based compensation on misreporting. *Journal of Financial Economics*, *79*(1), 35–67. Https://doi.org/10.1016/j.jfineco.2004.12.003.

Chava, S., & Purnanandam, A. (2010, August). CEOs versus CFOs: Incentives and corporate policies. *Journal of Financial Economics*, *97*(2), 263-278. Https://doi.org/10.1016/j.jfineco.2010.03.018.

Cheng, Q., & Warfield, T. D. (2005). Equity incentives and earnings management. *The Accounting Review*, *80*(2), 441-476. Doi: 10.2139/ssrn.457840.

Cohen, D. A., Dey, A., & Lys, T. Z. (2008, May). Real and accrual-based earnings management in the pre- and post-Sarbanes Oxley periods. *The Accounting Review*, *83*(3), 757-787. Https://www.jstor.org/stable/30244500.

Core, J., & Guay, W. (2002, June). Estimating the value of employee stock option portfolios and their sensitivities to price and volatility. *Journal of Accounting Research*, *40*(3), 613-630. Https://www.jstor.org/stable/3542266.

Degeorge, F., Patel, J., & Zeckhauser, R. (1999, January). Earnings management to exceed thresholds. *The Journal of Business*, *72*(1), 1-33. Https://doi.org/10.1086/209601.

Duellman, S., Ahmed, A. S., & Abdel-Meguid, A. M. (2013, November-December). An empirical analysis of the effects of monitoring intensity on the relation between equity incentives and earnings management. *Journal of Accounting & Public Policy*, *32*(6), 495-517. Https://doi.org/10.1016/j.jaccpubpol.2013.08.007.

Fama, E. F., & French, K. R. (1997, February). Industry costs of equity. *Journal of Financial Economics*, *43*(2), 153-193. Doi: 10.1016/S0304-405X(96)00896-3.

Feng, M., Ge, W., Luo, S., & Shevlin, T. (2011, February). Why do CFOs become involved in material accounting manipulations? Journal *of Accounting & Economics*, *51*(1-2), 21-36. Https://doi.org/10.1016/j.jacceco.2010.09.005.

Finkelstein, S. (1992, August). Power in top management teams: Dimensions, measurement, and validation. *The Academy of Management Journal*, *35*(3), 505-538. Https://www.jstor.org/stable/256485.

Ge, W., Matsumoto, D., & Zhang, J. L. (2010). Do CFOs have styles? An empirical investigation of the effect of individual CFOs on accounting practices. *Contemporary Accounting Research*, *28*(4), 1141-1179. Https://doi.org/10.1111/j.1911-3846.2011.01097.

Geiger, M. A., & North, D. S. (2006, July). Does hiring a new CFO change things? An investigation of changes in discretionary accruals. *The Accounting Review*, *81*(4), 781-809. Https://www.jstor.org/stable/4093151.

Gompers, P., Ishii, J., & Metrick, A. (2003, February). Corporate governance and equity prices. *The Quarterly Journal of Economics*, *118*(1), 107-156. Https://www.jstor.org/stable/25053900.

Ham, C., Lang, M., Seybert, N., & Wang, S. (2017). CFO narcissism and financial reporting quality. *Journal of Accounting Research*, *55*(5), 1089-1135. Https://doi.org/10.1111/1475-679X.12176.

Hennes, K., Leone, A., & Miller, B. (2008). The importance of distinguishing errors from irregularities in restatement research: The case of restatements and CEO/CFO turnover. *The Accounting Review 83*(6): 1487–1519. https://www.jstor.org/stable/30243804.

Indjejikian, R., & Matejka, M. (2009). CFO fiduciary responsibilities and annual bonus incentives. *Journal of Accounting Research*, *47*(4), 1061-1093. https://www.jstor.org/stable/40389208.

Jiang, J. X., Petroni, K. R., & Wang, I. Y. (2010, June). CFOs and CEOs: Who have the most influence on earnings management? *Journal of Financial Economics*, *96*(3), 513-526. Https://doi.org/10.1016/j.jfineco.2010.02.007.

Liu, R., Lin, S., & Wang, C. (2020). CFO promotion-based incentives and earnings management. *China Accounting & Finance Review, 22*(3), 1-30. Https://doi.org/10.26226/morressier.5f0c7d3058e581e69b05d123.

Matsumoto, D. A. (2002, July). Management's incentives to avoid earnings surprises. *The Accounting Review*, *77*(3), 483-514. Https://www.jstor.org/stable/3068885.

Mian, S. (2001, April). On the choice and replacement of chief financial officers. *Journal of Financial Economics*, *60*(1), 143-175. Https://doi.org/10.1016/S0304-405X(01)00042-3.

Payne, J. L., & Robb, S. W. (2000). Earnings management: The effect of ex ante earnings expectations. *Journal of Accounting, Auditing & Finance*, *15*(4), 371-392. Https://doi.org/10.1177/0148558X0001500401.

Roychowdhury, S. (2006, December). Earnings management through real activities manipulation. *Journal of Accounting & Economics*, *42*(3), 335-370. Https://doi.org/10.1016/j.jacceco.2006.01.002.

Skinner, D. J., & Sloan, R. G. (2002, June-September). Earnings surprises, growth expectations, and stock returns or don't let an earnings torpedo sink your portfolio. *Review of Accounting Studies*, *7*(2-3), 289-312. Doi: 10.1023/A:1020294523516.

Appendix (below: Table 1 (Panel B) and 4)

Table 1
Pearson Correlations of Main Variables Used in Accruals Management Analysis

Panel B												
Variables	|Discretionary Accruals|	Incent _CEO	Incent _CFO	Incent _GAP	CEO_ Payslice	CEO_ Chair	Size	StdCash -Flow	StdRev	StdSales -Growth	Old- firm	Leve- rage
Incent_CEO	0.07											
Incent_CFO	0.07	0.50										
Dummy_GAP	0.00	0.53	0.04									
CEO_Payslice	-0.00	-0.00	0.00	-0.00								
CEO_Chair	-0.05	0.12	0.01	0.15	0.01							
Size	-0.07	0.02	0.15	0.01	0.01	0.2						
StdCashFlow	0.18	0.04	-0.00	-0.00	0.00	-0.11	-0.42					
StdRev	0.09	0.03	-0.02	0.01	0.00	-0.06	-0.23	0.38				
StdSalesGrowth	0.13	0.10	0.06	0.05	-0.00	-0.07	-0.15	0.38	0.23			
Oldfirm	-0.11	-0.20	-0.12	-0.08	0.05	0.14	0.41	-0.28	-0.17	-0.23		
Leverage	-0.05	-0.22	-0.16	-0.09	0.00	0.13	0.41	-0.12	-0.01	-0.06	0.25	
MarketTo-BookDecile	0.07	0.36	0.38	0.14	0.00	-0.01	-0.22	0.19	0.04	0.04	-0.2	-0.28

Notes: correlations significant at the 5% level or less appear in bold.

Table 4

Pearson Correlations of Main Variables Used in Meeting or Beating Analysts' Forecasts Analysis

Variables	Positive Surprise	Incent _CEO	Incent _CFO	Dummy _GAP	CEO_ Payslice	CEO_ Chair	Size	Growth	Sales-Growth	NOA	Shares	Litiga-tion	Implicit-Claims	Analyst-Following
Incent_CEO	**0.06**													
Incent_CFO	**0.10**	**0.48**												
Dummy _GAP	0.01	**0.53**	0.01											
CEO_Payslice	0.02	0.00	0.01	0.01										
CEO_Chair	**0.02**	**0.10**	-0.01	**0.14**	**0.03**									
Size	**0.03**	**0.03**	**0.19**	0.00	0.02	**0.18**								
Growth	**-0.08**	**-0.28**	**-0.31**	**-0.10**	0.01	0.00	**0.06**							
SalesGrowth	**0.06**	**0.17**	**0.18**	**0.07**	0.01	-0.01	**-0.10**	**-0.19**						
NOA	**-0.06**	-0.01	**0.05**	0.01	**0.02**	**0.02**	**0.27**	**0.18**	**0.13**					
Shares	**0.07**	**0.19**	**0.33**	**0.05**	0.01	**0.11**	**0.80**	**-0.21**	**-0.06**	**0.14**				
Litigation	**0.07**	**0.16**	**0.12**	0.01	-0.01	**-0.08**	**-0.18**	**-0.09**	**0.05**	**-0.22**	**0.04**			
ImplicitClaims	**0.08**	**0.18**	**0.17**	**0.03**	0.00	**-0.07**	**-0.10**	**-0.13**	**0.14**	**-0.19**	-0.02	**0.13**		
AnalystFollowing	**0.09**	**0.21**	**0.35**	**0.06**	0.00	**0.11**	**0.57**	**-0.25**	**0.07**	**0.11**	**0.68**	**0.12**	**-0.05**	
ForecastDispersion	**-0.03**	**-0.03**	**-0.03**	0.01	0.01	0.01	0.02	**0.05**	**0.02**	**0.02**	**-0.02**	-0.02	**-0.04**	0.00

Notes: correlations significant at the 5% level or less appear in bold.