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Abstract

This study investigates the impact of job complexity and firm as well as CFO-specific performance on CFO compensation. We examine job complexity in terms of the intricacies of a firm's operations and whether the CFO serves on the Board of Directors. Accounting and stock market rates of return measure overall firm performance while the magnitude and success of the CFO's interactions with financial analysts along with CFO's use of accounting discretion to achieve earnings targets proxy for CFO-specific performance. We find that, consistent with our predictions, job complexity and performance (firm and CFO-specific) affect CFO compensation.

Keywords: Chief operating office, Executive compensation

JEL Classification: J33, L2, M41

Impact of Job Complexity and Performance on CFO Compensation

1. Introduction

A long line of research has focused on examining the relationship between executive compensation and firm performance measures, i.e., earnings (see Pavlik et al. 1993 for a survey of the literature) and stock returns (e.g., Clinch 1991; Lambert and Larcker 1987). The majority of the findings are based on chief executive officer (CEO) compensation, on the assumption that CEOs are the primary decision makers of their firms. In contrast, with the exception of a few recent working papers (discussed in the next section), very few studies examine chief financial officer (CFO) compensation. The objective of this study is to investigate the impact of job complexity and overall as well as CFO-specific performance on CFO compensation.

Traditionally, CFOs were considered to be financial stewards of their companies. Their forte was to assemble and present financial statements in a timely and accurate manner. In the past, operational managers, from manufacturing to sales and marketing, dominated most decision-making and were the top compensated members of a firm's executive team. In fact, up until the 2006 SEC rule requiring publicly traded companies to disclose CFO compensation in the proxy statement, approximately 20% of the Fortune 500 companies did not even disclose CFO pay because CFOs weren't one of the five highest paid executives (Leder 2007).

The role of the CFO has changed and arguably has become more challenging over the last decade. In addition to becoming a strategic key partner of the CEO, the CFO of today is in charge of understanding and applying the steady stream of new FASB standards and interpretations and meeting increasingly stringent SEC regulations including Sarbanes-Oxley Act (SOX) section 302 certification of the financial statements and SOX section 404 internal control

assessments (Sinnett 2007). As a consequence, nine out of ten CFOs responding to a survey conducted for Deloitte Research in 2003 said their jobs had become harder over the previous two years (Deloitte 2003). This increased responsibility has been accompanied by an increase in CFO compensation. A 2008 study by Equilar Inc., an executive compensation benchmarking company, found that median CFO compensation increased by 5.2 percent (to $2.9 million) from 2006 to 2007 while median CEO compensation only increased 1.3 percent over the same period.[1]

In this paper, we investigate the effect of job complexity and performance on CFO compensation and find that CFOs are not only rewarded based on the traditional measures of overall firm performance, i.e., earnings and stock returns measures, but are also rewarded based upon other factors measuring individual performance and job complexity. Using three different measures of CFO compensation (salary in year $t+1$, bonus and total compensation in year t), we find our proxies for firm and CFO-specific performance affect bonus and total compensation.[2] While we do find some significant results on the association between performance and salary, the results are much weaker, as might be expected, than those observed for bonus and total compensation. On the job complexity side, we find that all three measures of compensation are positively affected by the CFO sitting on the board of directors, free cash flow, and issuances of debt and equity. Our other variables measuring job complexity affect one or more but not all three measures of CFO compensation.

[1] http://www.equilar.com/press_20080529.php

[2] CFO salary is fixed and typically determined at the beginning of a fiscal year. Consequently, we predict our job complexity and performance measure at the end of a given year to impact CFO's next year's salary. Additional analysis in section four examines salary contemporaneously measured as the independent variables. Until that point, salary is measured in year $t+1$ and bonus and total compensation in year t. For reading ease, the characters t and $t+1$ are omitted.

The remainder of this paper is organized as follows. In section two, we summarize the literature and develop our hypotheses. In section three, we describe our sample and research method, while section four reports our empirical results. We conclude with a summary of our findings in section five.

2. Review of Literature and Hypotheses Development

Prior studies find that executive compensation is related to a number of factors, with the foci of research showing that compensation is positively associated with firm performance (accounting earnings and stock returns) and firm size. Most of this research focuses on CEO compensation. CEOs are compensated based upon firm performance, as they are ultimately responsible for the performance of the entire firm. Likewise division managers are compensated based upon the performance of their divisions, or the contributions of their divisions to the performance of the firm (Guidry et al. 1999). In contrast, CFOs generally speaking, while having firm wide responsibilities, are support personnel. That is, while essential to the operations of the firm, they are not the ones who generate the operating profits. How should they be compensated? In part, as high level executives they should be compensated based upon overall firm profitability. But in addition, we posit that they should also be compensated for *their* role in the overall performance of the firm as well as the complexity of their job.

We are aware of four papers that have examined CFO compensation, although it is likely that others are progress. Gore et al. (2007) find that monitoring from the finance committee and a CEO with a financial background substitute for contractual incentives for the CFO. Hoitash et al. (2007) find that internal control material weakness disclosures are negatively associated with CFO bonuses. Using a proprietary survey database of CFO compensation practices, Indjejikian

and Matejka (2008) find a six percent reduction in financial performance contingent CFO bonus for public entities in the post-SOX era compared to a three percent increase in comparable private companies. Wang (2005) investigates the impact of the Corporate Governance Reform Initiatives on CFO compensation, finding a decrease in the incentive weights on accounting and stock return measures in firms with a strong board structure and higher post-Reform CFO salary.

Job Complexity

CFOs' responsibilities have gone beyond merely managing the financial affairs of their companies. Though their job complexity can be evaluated in a variety of ways, we measure it on four dimensions: membership on the Board of Directors and intricacy of a firm's operating, investing and financing activities.

Board Membership

CFOs serve on the board of directors in about 15 percent of our sample observations (see Table 2). As discussed later, over our sample period we document a declining trend in the percentage of CFOs who are directors even though CFO compensation has been on the rise and CFOs are expected to provide more help to the audit committee on financial matters in the post-SOX era (Sinnett 2007). The decline is inconsistent with Bhagat and Black (1999) who report (in an earlier period) that the board typically included the CFO, but is consistent with the total number of inside directors decreasing in recent years, especially in the post-SOX era.

Prior research has shown that CEOs who also serve as board chairs receive higher compensation possibly for the additional work that is required of them (Mallette et al. 1995, Sridharan 1996, Core et al. 1999, Conyon and Murphy 2000). Following this same line of

argument, if CFOs are directors, it is likely that their presence on the board is needed (Hillman et al. 2000) to possibly improve the board's understanding of the financial matters related to the firm. This added importance and responsibility placed on the CFO should result in higher compensation. Consequently, our first hypothesis is as follows: [3]

H1: CFO compensation is positively related to the CFO serving on the board of directors.

Operating Activities/Diversification

Rose and Shepard (1997) examine the association between diversification and CEO pay and find that firms pay CEO's a diversification premia to attract and retain qualified managers. In a study investigating the relationship between Director compensation and effort, Adams (2003) finds that Director compensation increases with firm diversification. Following these findings for CEOs and directors, we hypothesize a positive association between CFO compensation and the complexity of a firm's operating activities which we proxy for by the number of geographical and business segments.

H2a: CFO compensation is positively associated with the number of geographical segments.

H2b: CFO compensation is positively associated with the number of business segments.

Investing Activities

We expect the extent of a firm's investing activities to also impact CFO compensation and measure it using the firm's free cash flow and the level of M&A activity. CFOs employed by firms with substantial free cash flow are responsible for investing that money. Mulford and Comiskey (2005) discuss the importance of free cash flow, its link with shareholder value and its use in contracting. Cash rich firms have also been found to be actively involved in diversifying acquisitions (Harford 1999). This increase in M&A activity will directly affect a CFO's

[3] We state all hypotheses in alternative form.

workload. Grinstein and Hribar (2004) find that 39 percent of the acquiring firms in their sample cite the completion of a deal as the reason for granting a bonus to their CEOs, with the variation in the bonus amount being a significant function of CEO effort and skill in consummating the deal. Consequently, our next two hypotheses predict a positive association between CFO compensation and the extent of a firm's investing activities:

H3a: CFO compensation is positively associated with the firm's free cash flow.

H3b: CFO compensation is positively related to corporate acquisitions.

Financing Activities

Finally, a firm that needs external capital requires a high quality CFO with credibility in the financial markets, e.g., creditors, banks or financial institutions, and credit rating agencies, to allow it to raise capital on favorable terms. The issuance of debt and/or sale of equity will require the CFO to file registration statements and deal with underwriters, lawyers, auditors and investors. The next two hypotheses predict a positive relationship between the associated increase in CFO quality/workload and CFO compensation.

H4a: CFO compensation is positively associated with the amount of issued debt.

H4b: CFO compensation is positively associated with the amount of issued equity.

Overall Firm Performance

Perhaps the most consistent result found in the executive compensation literature is the positive association between firm performance measures and executive compensation (Lambert and Larcker 1987, Sloan 1993, Baber et al. 1996). Consequently, we hypothesize a positive relationship between CFO compensation and firm performance as proxied by both accounting and stock market rates of return.

H5a: CFO compensation is positively associated with the return on assets.

H5b: CFO compensation is positively associated with the return on firm's stock price.

CFO-Specific Performance

The final set of hypotheses focus on CFO-specific performance, which we gauge based on CFO's interactions with financial analysts along with CFO's use of accounting discretion to achieve earnings targets. Arguably, the CFO is the primary individual responsible for interacting with analysts, both in terms of providing guidance as well as meeting targets set by analysts. Consequently, the CFO's compensation should take those interactions, as well as success in managing those interactions/meeting targets, into account. For example, the greater the number of financial analysts following the firm, the greater is the CFO's workload. Another measure of the CFOs workload/success in dealing with analysts is the number of, or magnitude of analysts forecast revisions during the year, as the CFO is expected to be the one communicating firm information to the analyst and analysts will be more likely to respond to a high quality/credible CFO.

H6a: CFO compensation is positively associated with analyst following.

H6b: CFO compensation is positively associated with analyst earnings forecast revisions.

In addition, we predict that CFO's compensation is affected by his or her ability to manage earnings expectations as well as accounting numbers to meet those expectations. A long line of literature has shown the importance of meeting earnings goals and the steps managers take to meet them. Graham et al (2005) surveyed and interviewed more than 400 executives and finds that executives believe that hitting earnings benchmarks, including meeting or exceeding analyst consensus estimates, builds credibility with the market and helps to maintain or increase

their firm's stock prices. CFOs that were interviewed felt that their inability to hit the earnings target was seen by the executive labor market as a "managerial failure." Supporting this view of the importance of meeting targets, Barth et al (1999) and Skinner and Sloan (2002) find that firms incur disproportionately large losses in market value if they miss analysts' forecasts. Unfavorable earnings surprises may also trigger shareholder litigation (Kasznik and Lev 1995, Skinner 1994). Matsunaga and Park (2001) find a significantly adverse effect on CEO annual cash bonuses if their firms miss quarterly earnings targets. In a similar vein, Mergenthaler et al. (2008) document severe career penalties in the form of a reduced bonus, smaller equity grants, and a greater chance of forced dismissal for both CEOs and CFOs of firms missing quarterly earnings benchmarks.

In contrast, significant economic benefits accrue to both the firm and its executives when earnings goals are met. Bartov et al. (2002) show that firms that meet or beat analyst forecasts enjoy a return premium, even when they meet forecasts by managing earnings. Kasznik and McNichols (2002) show higher subsequent earnings and market values for firms that meet or beat analyst forecasts over multiple subsequent quarters. Balsam (1998) finds that CEOs get rewarded for achieving certain earnings goals, even when they are achieved using income increasing discretionary accruals.

Given the concerns over avoiding the negative publicity and stock price reaction, career penalties on executives, and the potential loss of credibility and litigation for firms that do not meet earnings expectations, it is likely that the compensation committee views the CFO's ability to achieve earnings benchmarks as an important aspect of performance. Consequently, we test the following hypothesis:

H7a: CFO compensation is positively associated with meeting earnings goals.

Lastly we consider the impact on compensation of CFO's use of accruals to meet those earnings goals. A good deal of the earnings management literature starting with Healy (1985) has focused on the use of accruals to manage earnings, where accruals proxy for the degree of discretion in the accounting system. Geiger and North (2006) find that discretionary accruals decrease significantly following the appointment of a new CFO, consistent with the theory that a new CFO has significant influence over the firm's reported financial results. Graham et al (2005) report that CFOs interviewed indicated that they would use accruals within the confines of GAAP to reduce the perception of uncertainty about their firm's prospects and to a lesser extent to meet earnings goals. While the accrual process allows executives to exercise judgment in communicating private information about the future prospects for their firms (Healy and Palepu 1993, Dechow 1994, Guay, et al.1996, Subramanyam 1996), it also allows them to attain specific goals such as avoid debt covenant violations (Defond and Jiambalvo 1994) or (opportunistically) increase their compensation (Healy 1985, Balsam 1998).

As a result, we expect that compensation committees are likely to reward the CFO for discretionary accruals, when those accruals help achieve firm's earnings goals. That is, income-increasing or positive discretionary accruals can be used to help the firm attain an earnings target that would otherwise be missed. Analogously, income-decreasing or negative discretionary accruals can be used to smooth earnings, e.g., build up reserves, and/or lower future earnings thresholds. In both situations, CFO's would be managing earnings to meet firm goals and should be rewarded. Given the two situations provide opposing incentives, i.e., in one case to manage earnings upwards, the other downwards, empirically we utilize two distinct variables, positive discretionary accruals and negative discretionary accruals. In other words, using one continuous

variable would not allow us to test whether earnings management is rewarded in both situations. To be consistent we formulate the following two hypotheses:

H7b: CFO compensation is positively associated with positive discretionary accruals when those accruals are used to increase earnings to meet earnings goals.

H7c: CFO compensation is positively associated with (absolute value of) negative discretionary accruals when the firm has already met its earnings goals.

3. Research Method

Sample selection

Information on CFO compensation is obtained from ExecuComp. We identify CFOs by searching the title field for the strings "CFO" or "Chief Fi". We obtain analyst forecast data from Thomson Financial's I/B/E/S, and financial data from Compustat.

Using the search string above in ExecuComp, we identify 16,933 CFOs employed by 2,604 firms over the years 1993-2006. We eliminate 5,134 observations where CFO tenure is less than two years. We do so because CFO compensation in the first year may be abnormally low if the individual is a CFO for less than a full year or abnormally high if the new CFO is an outsider and the first year compensation includes a signing bonus or compensation to make up for the money forfeited when she left her former employer. We further lose 1,773 observations because of incomplete financial data on Compustat and 614 observations for incomplete forecast data on I/B/E/S. Finally, we eliminate 1,668 observations that either have missing compensation data on ExecuComp or belong to firms where there has been a change in CEO, which in turn

may impact CFO tenure and/or compensation.[4] The final sample consists of 7,744 firm year observations from 1,786 unique firms.

Insert Table I about here

Empirical Model

We use the following industry fixed effects model to examine the effect of job complexity and performance on CFO compensation:[5]

$$COMP = \beta_0 + \beta_1 DIRECTOR + \beta_2 GEOSEG + \beta_3 BUSSEG + \beta_4 FCF + \beta_5 ACQ + \beta_6 DEBTISSUE + \beta_7 STOCKSALE + \beta_8 ROA + \beta_9 RET + \beta_{10} NUMEST + \beta_{11} REVISION + \beta_{12} BEAT + \beta_{13} PDAxBEAT + \beta_{14} NDAxBEAT + \beta_{15} SIZE + \beta_{16} BTOM + \beta_{17} SOXDUM + \beta_{18} CEORESID + e \quad (1)$$

where:

COMP = measure of CFO compensation (log of salary, bonus or total compensation);

DIRECTOR = 1 if the CFO is a director, 0 otherwise;

GEOSEG = Log of the number of geographical segments;

BUSSEG = Log of the number of business segments;

FCF = Average free cash flow over the past three years, equal to the difference between operating cash flows and capital expenditures divided by (t-1) current assets (Dechow et al. 1996);

ACQ = Dollar amount of acquisitions divided by (t-1) sales. Missing values set to 0; [6]

[4] For example, Fee and Hadlock (2003) find that ''the probability of a non-CEO leaving office is elevated around CEO dismissals.''

[5] Unless otherwise indicated, all independent variables are measured for firm *i* at the end of year *t*. Firm and year subscripts are omitted for reading ease.

[6] Results remain unchanged if we omit missing values of *ACQ*, *DEBTISSUE* and *STOCKSALE*.

DEBTISSUE = Long-term debt issued divided by (t-1) total assets. Missing values set to 0;

STOCKSALE = Sale of common or preferred stocks divided by (t-1) total assets. Missing values set to 0;

ROA = Net income before extraordinary items divided by total assets;

RET = Annual raw return (includes dividends);

NUMEST = Log of the number of analyst earnings forecasts for a firm;

REVISION = Difference between the first I/B/E/S consensus forecast following the year t-1 earnings announcement and the last consensus forecast before year t earnings announcement, divided by stock price at the beginning of year t;

BEAT = 1 if actual EPS is greater or equal to the last median analyst earnings forecast before the end of year t, 0 otherwise;[7]

PDAxBEAT = Positive discretionary accruals (*PDA*) times *BEAT*, where discretionary accruals are estimated using the modified Jones model (Dechow et al. (1995)).[8] This variable equals zero if the discretionary accruals are negative;

NDAxBEAT = Absolute value of negative discretionary accruals (*NDA*) times *BEAT*, where discretionary accruals are estimated using the modified Jones model. This variable equals zero if the discretionary accruals are positive;

SIZE = Log of total assets at the beginning of year t;

BTOM = Book value of equity divided by market value of equity;

SOXDUM = 1 if fiscal year is 2002 or after, 0 otherwise;

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[7] Results do not change if we use the last median analyst forecast before the earnings announcement.

[8] We define total accruals as the difference between earnings before extraordinary items and cash flow from operations. We estimate the following model annually using all firm observations in the same two-digit SIC code:

$$\text{Total Accruals}_{i,t} = \beta_1(1/\text{Assets}_{i,t-1}) + \beta_2(\Delta\text{Sales Revenue}_{i,t} - \Delta\text{Receivables}_{i,t})/\text{Assets}_{i,t-1}) + \beta_3(\text{Net Property, Plant \& Equipment}_{i,t}/\text{Assets}_{i,t-1}) + e_{i,t}$$

The estimates ($\hat{\beta}_1, \hat{\beta}_2$ and $\hat{\beta}_3$) along with actual financial information for the firm are then used to compute expected accruals. Finally, we compute discretionary accruals as total accruals minus expected accruals.

CEORESID = Residual from a regression model where CEO compensation (salary, bonus or total compensation) is estimated using model (1); and

e = error term.

To investigate the impact of the test variables, we use three different measures of COMP: Salary, Bonus and Total Compensation. Total Compensation (ExecuComp variable *TDC1*) includes salary, bonus and equity compensation. CFO salary is typically determined at the beginning of the fiscal year, while bonus is paid at the end of the fiscal year. Consequently, we use our independent variables to explain salary in year t+1 and bonus and total compensation in year t.[9]

The first seven independent variables measure the CFO's job complexity. A positive coefficient on *DIRECTOR* ($\beta_1 > 0$) would support H1 and be consistent with CFOs being incrementally rewarded for serving on the Board. H2 through H4 predict CFO compensation to be positively associated with job complexity, which we gauge to be an increasing function of the operating (number of geographical and business segments), investing (free cash flow and acquisitions) and financing activities (issued debt or equity). Hence we expect β_2 through β_7 to be positive.

ROA and *RET* are our measures of overall firm performance, and consistent with H5a and H5b we expect both β_8 and β_9 to be positive. The next five coefficients (β_{10} through β_{14}) test the impact of CFO-specific performance measures on compensation. H6a and H6b predict a positive β_{10} and β_{11} as we expect CFO compensation to increase with the number of analysts and the magnitude of forecast revisions. Following Graham et al (2005), we use analyst earnings

[9] We lose 1,640 observations in the salary regression as the dependent variable is measured in year $t+1$.

forecasts as the measure of a firm's earnings goal. We expect CFOs to be compensated for meeting those earnings goals (H7a, $\beta_{12} > 0$), even if they reach those goals by managing earnings upwards (H7b, $\beta_{13} > 0$) or downwards (H7c, $\beta_{14} > 0$).[10]

As control variables, we include firm size (*SIZE*), book to market ratio (*BTOM*), SOX dummy (*SOXDUM*), and a measure to capture over/underpaid CEOs. Even though we do not formally predict signs on the coefficients of these variables, we expect $\beta_{15,}$ β_{17} and β_{18} to be positive and β_{16} to be negative. We expect CFO compensation to be higher if they work for large and high-growth (low book to market) firms. For example, large firms typically have a more complex structure and require a higher level of managerial effort than do small firms. Smith and Watts (1992), Gaver and Gaver (1993, 1995), and Gaver et al (1995) show that firm size and growth potential is related to compensation. Large firms typically have more complex structures and require a higher level of managerial effort than do small firms. In addition, given the increase in CFO responsibilities following SOX, everything else being equal, we expect post-SOX CFO compensation to be higher. This follows from Wang (2005) that finds an increase in CFO salary level relative to COOs (chief operating officers) in the post-SOX era compared to the pre-SOX era. Finally, following Wade et al. (2006) who find that CEOs use their power to increase their own salaries as well as those of their subordinates, we expect the degree of CEO over/underpayment to positively affect CFO compensation.

4. Results

Descriptive Statistics

[10] Using the absolute value of negative discretionary accruals allows us to predict a positive sign on *NDAxBEAT*.

Table 2 reports descriptive statistics for all variables. Mean CFO salary over our 14-year sample period is $321,041 while mean bonus over this same period is $218,744. Comparing these means to average total compensation of $1,361,713 shows mean cash compensation (salary + bonus) to be less than 50 percent of total compensation. Even though observations for all compensation measures are winsorized at one standard deviation, there are still enough large observations to make the median substantially lower than the mean. This is most obvious in the case of bonus where mean bonus is more than one and half times the median bonus.

Insert Table 2 about here

Roughly fifteen percent of the firm-year observations have CFOs serving as Directors. In unreported analysis, we find that percentage to have substantially decreased, from nineteen percent during 1993-2002 to eight percent during 2003-06, which as we noted earlier, is consistent with the drop in number of inside directors in recent years. Sample firms on average were profitable over our sample period as evidenced by a 4.5 percent mean return on assets and an 18.7 percent mean stock price return. Mean analyst following was around ten and sample firms were able to meet or beat analyst earnings forecasts about two-thirds of the time. Mean firm size is over three billion dollars in assets with the mean book to market ratio just under 0.5.

Table 3 presents both Pearson and Spearman correlations among the independent variables. As expected, many of the variables measuring job complexity and performance are correlated amongst each other. These correlations are relatively low with the largest Pearson correlation coefficient being 0.548 between firm size (*SIZE*) and analyst following (*NUMEST*), indicating that multicollinearity should not be a problem. We also examined the variance inflation factor (VIF). For the models presented in Table 4, only the VIFs on some industry

controls exceed the acceptable level of 10. We obtain qualitatively similar results after removing those industry controls and running the reduced model.

Insert Table 3 about here

Multivariate Analysis

Table 4 reports the results between the three measures of CFO compensation and job complexity and performance. All three models are highly significant with R^2s ranging from 56.97 to 66.29 percent. Among the job complexity measures, all variables except one have the expected sign with *DIRECTOR*, *FCF*, *DEBTISSUE* and *STOCKSALE* significant in explaining *all* three compensation measures. These findings provide strong support for our hypothesis that CFO compensation is positively affected by CFO's membership on the board (H1), firm's free cash flow (H3a) and debt (H4a) and equity (H4b) issuances.

Other job complexity measures are significant in explaining at least one of the three compensation measures. Consistent with H3b, *ACQ* significantly affects bonus and total compensation but does not affect salary. Results are mixed on variables measuring the complexity of a firm's operating activities. Supporting H2a and H2b respectively, we find the number of geographical segments (*GEOSEG*) to affect total compensation and the number of business segments (*BUSSEG*) to affect salary and bonus.

Insert Table 4 about here

Consistent with H5a and H5b, we find both overall firm performance measures (*ROA* and *RET*) strongly significant (p-value < 0.01) in explaining all three measures of compensation.

These findings are in line with firms rewarding their CFOs higher salary as well as bonuses and equity grants that are tied to overall firm performance.

We find all our CFO-specific performance measures to be significant in explaining bonus and total compensation, thereby supporting H6a, H6b, H7a, H7b and H7c. With respect to salary, we only find *BEAT* and *PDAxBEAT* to be significant. These results imply that CFOs are rewarded with higher salaries for meeting earnings goals, especially if those goals are achieved by managing earnings upwards (*PDA*). That is, while a negative coefficient on the interaction would imply that the CFO is not rewarded for meeting earnings goals through earnings management, and an insignificant coefficient would imply the CFO is rewarded equally as long as the forecast is met, a positive coefficient implies the CFO gets an extra reward when he/she uses earnings management to meet an earnings goal.[11]

Finally, all the control variables are significant in explaining all three measure of CFO compensation. CFOs of larger firms and those with high growth opportunities (low book to market ratios) receive higher compensation. CFO compensation is also higher in the post-SOX era as they are being paid more to reflect their increased responsibilities. Finally, a positive coefficient on *CEORESID* is consistent with over/underpaid CEOs over/underpaying their CFOs.

Additional Analysis

Using variables measured in year *t* to explain year *t+1* salary is consistent with CFO salary being determined at the beginning of the year and affected by ex ante measures of job complexity and performance. However in some cases, salary can also be impacted by

[11] To be precise, if the sum of the positive coefficient on BEAT and the negative coefficient on PDA*BEAT is insignificantly different from zero; it would imply that there is no reward for meeting earnings forecasts via earnings management.

contemporaneous measures as a CFO can receive a raise during the fiscal year for increased job complexity and/or good performance. To examine this possibility, Table 5 presents our results of regressing salary measured in year t on contemporaneously measured independent variables.

Insert Table 5 about here

Interestingly, the explanatory power of this contemporaneous salary model is higher than the three models in Table 4. Significance on job complexity coefficients is similar to those in Table 4 except *DEBTISSUE* is no longer significant. With respect to performance, only *RET* and *NUMEST* are significant. Insignificance of *BEAT* and *BEATxPDA* is consistent with CFOs being awarded higher salaries for meeting annual earnings goals in the preceding period.

5. Conclusion

CFOs in the post SOX period have more responsibility and attention paid to them than ever before. In this paper, we investigate the effect of job complexity and overall firm and CFO-specific performance on compensation in hopes of shedding insight on CFO's rewards and incentives. By focusing on the tasks of the CFO, as well as CFO-specific performance measures, we find that CFOs are not only awarded based on the traditional earnings and stock returns measures, but are also rewarded based upon other factors. Focusing on constructs not previously examined in the literature, we find that CFO compensation is positively associated with job complexity and CFO-specific performance. With respect to job complexity, we find CFO compensation to increase with the intricacy of a firms operating, investing and financing activities. CFO compensation is also higher if the CFO sits on the board of directors. CFO-

specific measures impacting compensation include the CFO's ability to deal with analysts and meet earnings goals, especially if the latter is achieved via managing earnings.

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Appendix
Variable Definitions
(All variables are measured at the end of year t unless otherwise stated)

Variables	Definition
CFO Compensation	
COMP – Salary	Log of annual salary
COMP – Bonus	Log of annual bonus
COMP – Total	Log of total compensation – includes salary, bonus and equity compensation (grant date value as determined by ExecuComp)
Job Complexity	
DIRECTOR	1 if the CFO is a director, 0 otherwise.
GEOSEG	Log of the number of geographical segments.
BUSSEG	Log of the number of business segments.
FCF	Average free cash flow over the past three years, equal to the difference between operating cash flows and capital expenditures divided by (t-1) current assets.
ACQ	Dollar amount of acquisitions divided by (t-1) sales. Missing values set to 0.
DEBTISSUE	Long-term debt issued divided by (t-1) assets. Missing values set to 0.
STOCKSALE	Sale of common or preferred stock divided by (t-1) assets. Missing values set to 0.
Overall Firm Performance	
ROA	Net income before extraordinary items divided by total assets.
RET	Annual raw return (includes dividends).
CFO-Specific Performance	
NUMEST	Log of the number of analyst earnings forecasts for a firm.
REVISION	Difference between the first I/B/E/S consensus forecast following the year t-1 earnings announcement and the last consensus forecast before year t earnings announcement, divided by stock price at the beginning of year t.
BEAT	1 if actual EPS is greater than or equal to the last median analyst earnings forecast before the end of year t, 0 otherwise.
PDAxBEAT	Positive discretionary accruals (*PDA*) interacted with *BEAT*, where discretionary accruals are estimated using the modified Jones model. This variable equals zero if the discretionary accruals are negative.
NDAxBEAT	Absolute value of negative discretionary accruals (*NDA*) interacted with *BEAT*, where discretionary accruals are estimated using the modified Jones model. This variable equals zero if the discretionary accruals are positive.
Control Variables	
SIZE	Log of total assets at the beginning of year t.
BTOM	Book value of equity divided by market value of equity.
SOXDUM	1 if fiscal year is 2002 or after, 0 otherwise.
CEORESID	Residual from a regression model where CEO compensation (salary, bonus or total compensation) is estimated using model (1).

Table 1
Sample Selection

	Firm-years	Firms
Available observations in ExecuComp with CFO data (1993 – 2006)	16,933	2,604
Less: CFO tenure less than 2 years	(5,134)	(306)
Less: Missing I/B/E/S data	(614)	(57)
Less: Missing ExecuComp data and observations with change in CEO	(1,668)	(96)
Less: Missing Compustat data	(1,773)	(359)
Final Sample	7,744	1,786

Table 2
Descriptive Statistics
(n = 7,744)

Variable	Mean	Standard Deviation	1st Quartile	Median	3rd Quartile
CFO Compensation					
COMP – Salary	321,041	131,983	225,000	297,000	386,870
COMP – Bonus	218,744	339,639	34,067	131,000	278,566
COMP – Total	1,361,713	1,282,955	515,090	904,617	1,672,148
Job Complexity					
DIRECTOR	0.149	0.356	0	0	0
GEOSEG	2.573	1.496	2	2	3
BUSSEG	2.260	1.523	1	2	3
FCF	0.092	0.220	-0.002	0.095	0.199
ACQ	0.028	0.092	0	0	0
DEBTISSUE	0.100	0.176	0	0.015	0.114
STOCKSALE	0.027	0.062	0.002	0.008	0.021
Overall Firm Performance					
ROA	0.045	0.086	0.020	0.049	0.086
RET	0.187	0.660	-0.130	0.110	0.366
CFO-Specific Performance					
NUMEST	10.368	7.426	5	8	14
REVISION	-0.011	0.112	-0.010	-0.0005	0.003
BEAT	0.662	0.473	0	1	1
PDA	0.205	0.658	0	0.003	0.081
NDA	0.142	0.472	0	0	0.061
Control Variables					
SIZE (in millions)	3,298.080	5,421.427	426.652	1,077.342	3,111.664
BTOM	0.484	0.374	0.259	0.423	0.621
CEORESID – Salary	1.106	0.382	0.880	1.068	1.272
CEORESID – Bonus	5.008	12.894	0.044	1.855	4.404
CEORESID - Total	1.316	1.069	0.651	1.012	1.580

See Appendix for variable definitions. For easier interpretation, we present descriptive statistics using raw numbers for logged variables. All variables are winsorized at one standard deviation.

Table 3
Pearson and Spearman Correlations
(n = 7,744)

	DIRECTOR	*GEOSEG*	*BUSSEG*	*FCF*	*ACQ*	*DEBT ISSUE*	*STOCK SALE*	*ROA*	*RET*	*NUMEST*	*REVISION*	*BEAT*	*PDA*	*NDA*	*SIZE*	*BTOM*	*SOX DUM*	*CEO RESID - Salary*	*CEO RESID - Bonus*	*CEO RESID - Total*
DIRECTOR		-0.018	**-0.053**	-0.009	-0.010	-0.007	-0.020	**0.048**	**-0.026**	**0.043**	-0.006	-0.012	**-0.032**	**0.042**	0.014	**0.070**	**-0.159**	0.020	-0.014	0.004
GEOSEG	-0.019		**0.096**	**-0.024**	**0.037**	**-0.052**	**0.023**	**-0.026**	0.006	**0.074**	**-0.027**	0.019	**0.095**	**-0.053**	**0.062**	**-0.096**	0.003	0.007	0.011	-0.018
BUSSEG	**-0.053**	**0.092**		**0.066**	-0.003	-0.021	**-0.103**	**-0.030**	**-0.023**	**-0.048**	0.015	**-0.027**	0.015	**0.023**	**0.275**	**0.045**	**0.125**	**-0.051**	0.009	**-0.032**
FCF	-0.019	-0.021	**0.067**		0.005	**-0.077**	**-0.139**	**0.410**	**0.036**	**0.121**	**0.074**	**0.125**	0.001	**-0.039**	**0.179**	**-0.169**	**0.161**	0.003	-0.018	**0.027**
ACQ	-0.015	**0.045**	-0.007	**0.043**		**0.308**	**0.112**	**-0.070**	**0.032**	0.017	0.019	-0.002	0.013	**-0.022**	**-0.069**	-0.015	**-0.048**	0.003	-0.016	**0.025**
DEBTISSUE	**0.038**	**-0.044**	**0.062**	**-0.076**	**0.193**		**0.058**	**-0.073**	0.015	**-0.029**	0.000	**-0.052**	**-0.026**	**0.024**	**-0.042**	**0.023**	**-0.061**	0.006	-0.012	0.017
STOCKSALE	**-0.097**	**0.071**	**-0.123**	**0.054**	**0.109**	**-0.142**		**-0.058**	**0.220**	0.019	**0.043**	**0.031**	**0.090**	**-0.045**	**-0.235**	**-0.160**	**-0.046**	**0.024**	0.002	**0.079**
ROA	**0.023**	0.004	**-0.091**	**0.445**	**-0.049**	**-0.169**	**0.263**		**0.157**	**0.171**	**0.193**	**0.160**	0.010	**0.067**	**0.026**	**-0.268**	-0.015	-0.016	**-0.059**	0.012
RET	**-0.028**	-0.002	0.003	**0.131**	0.018	-0.007	**0.206**	**0.226**		-0.002	**0.144**	**0.111**	**0.042**	**-0.035**	**-0.050**	**-0.260**	-0.004	**-0.023**	**-0.057**	**0.021**
NUMEST	**0.040**	**0.077**	**-0.048**	**0.135**	**0.033**	**0.027**	**0.153**	**0.168**	0.021		**0.081**	**0.103**	-0.018	0.011	**0.548**	**-0.249**	**-0.050**	**0.064**	-0.008	**0.059**
REVISION	**-0.029**	-0.008	0.007	**0.197**	0.020	**-0.056**	**0.229**	**0.403**	**0.447**	**0.130**		**0.074**	-0.009	0.015	**0.042**	**-0.104**	**0.033**	-0.003	**-0.030**	0.008
BEAT	-0.012	0.022	**-0.027**	**0.145**	0.018	**-0.071**	**0.111**	**0.196**	**0.170**	**0.098**	**0.238**		-0.002	**-0.043**	0.022	**-0.141**	**0.061**	-0.012	**-0.060**	0.001
PDA	-0.009	**0.092**	0.016	**-0.064**	0.019	-0.010	**0.069**	**0.104**	0.008	-0.021	**0.039**	-0.018		**0.094**	**-0.040**	**-0.081**	**0.107**	0.003	-0.009	0.000
NDA	**-0.027**	-0.001	**-0.025**	**0.078**	0.012	**-0.038**	**0.046**	**-0.119**	0.001	0.006	**-0.028**	**0.032**	**-0.857**		**0.051**	**0.066**	**-0.190**	**-0.027**	-0.000	-0.020
SIZE	0.011	**0.064**	**0.270**	**0.177**	**-0.074**	**0.166**	**-0.199**	**-0.076**	0.012	**0.559**	**0.070**	**0.022**	**-0.074**	-0.000		-0.010	**0.146**	**0.053**	**0.038**	0.007
BTOM	**0.071**	**-0.104**	**0.101**	**-0.259**	**-0.035**	**0.081**	**-0.411**	**-0.458**	**-0.346**	**-0.263**	**-0.280**	**-0.154**	**-0.070**	**-0.027**	0.019		-0.022	**-0.034**	**0.047**	**-0.063**
SOXDUM	**-0.159**	0.010	**0.125**	**0.173**	**-0.041**	**-0.096**	**0.126**	-0.008	**0.033**	**-0.045**	**0.117**	**0.061**	**-0.038**	**0.124**	**0.141**	0.009		-0.015	**0.106**	**-0.029**
CEORESID - Salary	0.008	**0.029**	**-0.033**	**0.031**	0.011	0.013	0.004	**0.036**	**-0.036**	**0.087**	**-0.040**	-0.016	**0.024**	-0.004	**0.098**	**-0.051**	-0.016		**0.126**	**0.305**
CEORESID - Bonus	0.010	-0.000	-0.018	0.013	**0.027**	0.009	0.022	**0.052**	0.002	**-0.032**	**0.133**	**-0.070**	0.013	0.009	-0.018	**0.030**	**-0.025**	**0.225**		**0.0177**
CEORESID - Total	-0.014	0.002	-0.007	**0.056**	**0.033**	**-0.037**	**0.114**	**0.083**	0.002	**0.030**	**0.072**	0.004	**0.027**	0.012	0.014	**-0.091**	0.014	**0.408**	**0.343**	

*See Appendix for variable definitions. Pearson (Spearman) correlations are shown at the top (bottom) of the table.
** Coefficients in bold are significant at p<0.05 level.

Table 4
Impact of Job Complexity and Performance on Measures of CFO Compensation

Independent Variables*	Hypothesized Sign	*COMP – Salary*$_{t+1}$ Coefficient	p-value	*COMP – Bonus*$_t$ Coefficient	p-value	*COMP – Total*$_t$ Coefficient	p-value
Intercept		1.854	<0.01	1.323	<0.01	1.921	<0.01
Job Complexity							
DIRECTOR	+	0.052	<0.01	0.118	<0.01	0.061	<0.01
GEOSEG	+	-0.002	0.61	0.017	0.32	0.036	<0.01
BUSSEG	+	0.021	<0.01	0.189	<0.01	0.007	0.24
FCF	+	0.016	0.02	0.152	<0.01	0.046	<0.01
ACQ	+	0.010	0.26	0.362	<0.01	0.162	<0.01
DEBTISSUE	+	0.013	0.06	0.071	0.05	0.045	<0.01
STOCKSALE	+	0.128	<0.01	0.227	0.04	0.590	<0.01
Overall Firm Performance							
ROA	+	0.038	0.03	1.468	<0.01	0.148	<0.01
RET	+	0.013	<0.01	0.134	<0.01	0.022	<0.01
CFO-Specific Performance							
NUMEST	+	-0.004	0.78	0.074	0.01	0.150	<0.01
REVISION	+	-0.010	0.78	0.409	<0.01	0.040	0.04
BEAT	+	0.005	0.05	0.166	<0.01	0.036	<0.01
PDAxBEAT	+	0.005	0.02	0.054	<0.01	0.010	0.04
NDAxBEAT	+	-0.001	0.63	0.092	<0.01	0.013	0.03
Control Variables							
SIZE		0.207	<0.01	0.276	<0.01	0.318	<0.01
BTOM		-0.017	<0.01	-0.189	<0.01	-0.111	<0.01
SOXDUM		0.057	<0.01	-0.085	<0.01	0.087	<0.01
CEORESID		0.222	<0.01	0.653	<0.01	0.472	<0.01
Number of Observations		6,104		7,744		7,744	
Adjusted R^2		63.14%		56.97%		66.29%	

See Appendix for variable definitions. A one-tailed (two-tailed) p-value is reported for all test (control) variables.
* industry fixed effects are not reported.

Table 5
Contemporaneous Impact of Job Complexity and Performance on CFO Salary
(n = 7,744)

Independent Variables*	Hypothesized Sign	*COMP – Salary*$_t$ Coefficient	p-value
Intercept		1.853	<0.01
Job Complexity			
DIRECTOR	+	0.066	<0.01
GEOSEG	+	-0.002	0.66
BUSSEG	+	0.026	<0.01
FCF	+	0.019	<0.01
ACQ	+	-0.004	0.77
DEBTISSUE	+	0.005	0.42
STOCKSALE	+	0.088	<0.01
Overall Firm Performance			
ROA	+	-0.009	0.57
RET	+	0.005	<0.01
CFO-Specific Performance			
NUMEST	+	-0.018	<0.01
REVISION	+	-0.009	0.36
BEAT	+	-0.003	0.28
PDAxBEAT	+	0.003	0.11
NDAxBEAT	+	-0.002	0.57
Control Variables			
SIZE		0.211	<0.01
BTOM		-0.019	<0.01
SOXDUM		0.067	<0.01
CEORESID		0.239	<0.01
Number of Observations		7,744	
Adjusted R^2		69.82%	

See Appendix for variable definitions. A one-tailed (two-tailed) p-value is reported for all test (control) variables.
* industry fixed effects are not reported.