Free Cash Flow and Executive Compensation

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Abstract

The study examines the contract-relevance of Free Cash Flow (FCF) on the premise that it captures efforts managers devote to working capital management, offers firms flexibility in project financing, and has a direct link to shareholders' wealth creation. Although these features suggest FCF will play a role in incentive contracts, empirical evidence is limited. This paper shows that FCF is contract-relevant and its relevance varies with the sensitivity of shareholders' value to FCF, the firm's demand for spending flexibility, and the scope for managerial misuse of FCF. Furthermore, following the passage of the Sarbanes-Oxley Act (SOX) the contract-relevance of FCF remains positive and significant in long-term contracts, but is reduced in bonus contracts.

JEL Classification: J33.

Keywords: Free Cash Flow, Executive compensation, Spending flexibility, Scope of FCF misuse, Sarbanes-Oxley Act.

Introduction

This study examines the role of Free Cash Flow (FCF) in executive (CEO) compensation contracts. For the empirical predictions, I draw from the principal-agent theory which states that a performance measure will play a role in contracts if it provides incremental information about manager's effort beyond what is in other measures already included in contracts or facilitates efficient risk-sharing between contracting parties (see for example, Holmstrom (1979), Gjesdal (1981), Lambert and Larcker (1987), Banker and Datar (1989), Sloan (1993), and Bushman et al. (1996)). In addition, I assume as in several prior studies that executive compensation contracts are explicitly or implicitly based on both accounting- and stock-price-based measures of performance. I further assume that the importance of an additional performance measure in contracts depends on the latter's ability to capture aspects of managers' actions that are either missing or inadequately reflected in accounting numbers and/or stock price (see for example, Bushman et al. (1996), Ittner et al. (1997), and Banker et al. (2000)). Using this framework, I propose and test that FCF is contract relevant based on the information it contains about important aspects of managers actions that are missing in accounting numbers (earnings and cash flow from operations) and difficult to ascertain from the stock price. I further identify and examine contexts that are likely to create differences in the contracting weight of FCF in cross section.

In the analysis, I first examine the contracting relevance of FCF in a general setting. In this regard, I draw from anecdotes in press reports and proxy statements of various companies such as Constellation Brands which suggest that, in relation to accounting earnings and operating cash flows, FCF is incrementally informative about sustainable economic value created by managers and bears a direct link to shareholder value (see for example, Mulford and Comiskey 2005). The key idea (which I discuss in section 2.1) is that FCF captures efforts that managers devote to working-capital management and to investments that generate superior cash flow. Studies in financial economics offer a related view. In particular, several studies have observed that FCF is a measure of the flexibility and options a firm has in project selection and financing (see for example, Alti (2003)). The flexibility that FCF confers further mitigates the agency costs firms will otherwise incur when they must rely on external funds (see for example, Myers (1984) and Myers and Majluf (1984). In this sense, FCF can be viewed as a measure of management performance in creating financing options and flexibility.

In other words, FCF not only captures efforts managers devote to liquidity and credit management, but also represents an important internal financing device for firms. Nonetheless, whether these noted attributes combine to give FCF a significant role in executive compensation contracts in the presence of earnings, cash from operations, and stock returns is an empirical question.

For the empirical tests, I define FCF as cash flow from operations (OANCF) minus dividends (DVC) and minus capital expenditures (CAPEX). FCF in this context is a measure of the residual cash flow available for enterprise activity such as investment, debt repayment, stock repurchases, acquisitions, and/or other discretionary enterprise activities which can be expected to enhance enterprise value. Initially, I analyze the independent effect of FCF on executive compensation. In particular, I regress two measures of executive compensation (CEO cash compensation and CEO total compensation) on FCF in the presence of earnings, cash from operations, stock returns, and other control variables commonly shown to affect executive compensation. This initial analysis shows that FCF is positively associated with both cash and total compensation variables.[1]

Next, I propose and test three hypotheses about cross-sectional variation in the contract relevance of FCF. Specifically, I test that the sensitivity of executive compensation to FCF varies systematically with three major factors: (1) the FCF-shareholder value sensitivity, (2) the firm's demand for spending flexibility, and (3) the scope for managerial misuse of FCF. The FCF-shareholder value sensitivity hypothesis is based on the argument that the internal demand for, and the importance of FCF in contracts is greater for firms whose shareholder value is more sensitive to FCF. In particular, several press reports and anecdotes from proxy filings suggest that the sensitivity of shareholder wealth to a performance measure is an important determinant of the weight of that performance measure in contracts[2]. Thus, I predict that the weight of FCF in contracts is larger for firms whose shareholder value is more sensitive to FCF. I use the coefficient from a firm-specific reverse regression of FCF per share on price per share (adjusted for stock splits) as my sensitivity measure, where high coefficient firms are those for which I predict the contracting weight of FCF will be larger in cross-section.[3] I use reverse regression to mitigate the effect of measurement error in the FCF on the slope coefficient. In support of the FCF-shareholder value sensitivity hypothesis, I find that the weight of FCF in CEO cash compensation is higher for firms whose market values are more highly associated with FCF. The evidence is weak in total compensation.

The firm's demand for spending flexibility hypothesis stems from the notion that some firms have a higher need for the spending flexibility inherent in internally generated funds and are, thus, likely to place a higher contracting weight on FCF. The key prediction is that, ceteris paribus, the relevance of FCF in contracts will be greater for firms that demand greater flexibility in capital spending decisions, compared to firms whose demand for such flexibility is low. I use two factors to measure a firm's demand for spending flexibility: external financing constraint and repurchase payout policy. I find that for external financing constraint, the weight of FCF is significantly higher in cash compensation and significantly lower in total compensation. I also find that stock repurchase is positively associated with the weight of FCF in total compensation, but its effect on the weight of FCF in cash compensation is insignificant. Overall, these results lend support to the argument that firms' demand for spending flexibility affects the relevance of FCF in compensation contracts.

The scope for managerial misuse of FCF describes the tendency among managers to use FCF in ways that are self-serving, in line with the free cash flow problem discussed by Jensen (1986).[4] I predict that the weight of FCF in contracts is inversely related to the scope for managerial misuse of FCF; In other words, I expect a greater contracting role for FCF when firms have lower agency costs of FCF.

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[1] As an alternative measure of FCF, I use FCF defined as cash flow from operations (OANCF) minus capital expenditures (CAPEX); the results are qualitatively the same and are omitted for brevity.

[2] The role of FCF in compensation contracts in this scenario stems from the fact that, even though the stock price captures the managerial actions reflected on FCF, the stock price is not divisible in ways that can reveal the separate effect of such actions reliably for contracting purposes.

[3] I also use the R-square from the reverse regression as an alternative indicator of the FCF-shareholder value sensitivity, where median R-square firms are those for which the compensation weight of FCF is predicted to be greater in cross-sectional tests.

[4] Several studies also highlight the agency problems of FCF. Harford (1999), for example, shows that acquisitions by cash-rich firms are value-diminishing and that mergers in which the bidder is cash-rich are followed by abnormal declines of operating performance; Opler et al. (1999) indicate that firms with excess cash have higher capital expenditures, and spend more on acquisitions, even when their investment opportunities are poor; Blanchard et al. (1994) find that eleven firms with windfall legal settlements appear to engage in wasteful spending.

This prediction derives from the argument that, when there are inadequate safeguards against the agency costs of FCF, shareholders will de-emphasize FCF in contracts, aware of management's incentive to misuse FCF. Conversely, FCF can be expected to play a greater role in contracts when the agency cost of FCF is low and FCF is viewed as a credible indicator and driver of value creation.

For the analysis, I focus on two popular solutions to the agency costs of FCF—*incentive alignment between managers and owners* and *effective monitoring of managers' actions*. I predict that, all else being equal, the demand for FCF in contracts is higher among firms in which there is greater incentive alignment between managers and owners; and also among firms in which there is more effective monitoring of managers' actions. In both scenarios, rational shareholders have greater incentive to contract on FCF aware that managers have little motivation or opportunity to misappropriate FCF but, rather, greater incentive to deploy FCF optimally. Drawing from prior research, I construct a proxy for incentive alignment based on the level of insider ownership and use institutional ownership concentration as a proxy for the effectiveness of outsider monitoring. I find that firms with "greater" incentive alignment (defined as firms with median proportion of insider ownership) attach a higher weight to FCF in cash compensation and in total compensation. I also find that firms with high institutional investors' concentration attach a greater weight to FCF in total compensation; I do not find such evidence in cash compensation. Overall, these results support the prediction that FCF has greater weight in contracts for firms with characteristics indicating a reduced scope for managerial misuse of FCF.

In an additional test, I examine the impact of the Sarbanes-Oxley Act (SOX) on the contracting role of FCF. The analysis draws from extant studies which suggest that the implementation of SOX has led to fundamental changes in corporate governance practices and in the stewardship quality of reported earnings. For example, Carter et al. (2009) analyze the impact of SOX on the relation between earnings and bonuses. The authors predict and find support for the joint hypothesis that SOX led to decreases in earnings management and firms responded by increasing the weight of earnings in bonus contracts. What is not obvious is the extent and direction to which the Act impacted the contracting role of FCF. To motivate my test, I extrapolate from the prevailing view of the effect of SOX on the stewardship quality of earnings. In particular, I hypothesize that the effect of SOX on the stewardship quality of earnings also extends to the quality of FCF by increasing the precision with which FCF reflects underlying executives' actions. For example, Section 404 of SOX requires management to evaluate and certify the contents and substance of the financial statement, including those of the cash flow statement (Coates (2007), Prentice (2007))[5]. Recent studies report that this aspect of SOX has been largely successful in promoting financial reporting quality (Singer and Haifeng (2011)). As a consequence, it is reasonable to expect increased precision with which FCF reflects both the management success in liquidity/credit management and the attractiveness of current investments. Under such a scenario, the role of FCF in contracts can be expected to increase following the passage of SOX.

For the analysis, I regress compensation measures on interactions between SOX and FCF. I define SOX as a dummy variable that takes the value of 1 for years after 2001, and 0 otherwise. I find that the coefficient of the interaction between FCF and SOX is negative and significant in cash compensation. This result suggests that the role of FCF in bonus contracts has declined after the passage of SOX. I also find that the coefficient of interaction between FCF and SOX is insignificant in total compensation. This result, together with a positive coefficient for FCF, suggests that FCF remains an important contracting variable in long-term incentive contracts after the passage of SOX.

This paper contributes to the compensation literature in several ways. First, the paper highlights the importance firms attach to working capital management and financing flexibility by showing that firms contract on FCF in both short-term and long-term incentive contracts, after controlling for the presence of accounting and stock price performance measures.

[5] Section 404 of SOX requires that 1) officers evaluate and disclose "material weaknesses" in their firm's control system, which the chief executive officer and chief financial officer must personally certify; and 2) outside auditors "attest" to those disclosures—that is, either agree with the officers or express a qualified or adverse opinion (Coates (2007)). A material weakness is defined by the SEC "a deficiency, or a combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of the registrant's annual or interim financial statement will not be prevented or detected in time by the company's internal controls." (See for example, Willkie et al. (2007)).

Second, the study extends prior literature by showing that the sensitivity of FCF to executive compensation is conditioned by at least three factors: (1) the extent to which FCF is reflected in shareholder value, that is, firms that expect greater shareholder benefits from FCF contract more with FCF; (2) the firm's demand for spending flexibility, that is, firms that have greater need for the spending flexibility inherent in internally generated capital tend to contract more with FCF; and (3) the scope for managerial misuse of FCF, that is, Firms tend to contract more with FCF when they are equipped with mechanisms that mitigate the agency costs associated with FCF. Third, this study extends prior literature on the implications of SOX for the relevance of performance measures in contracts. Prior research has shown that following SOX, firms have increased the weight they attach to accounting measures, notably earnings in bonus contracts (Carter et al. (2009)). This study examines the implications of SOX for the contract relevance of FCF. I document that following the passage of SOX firms continue to attach a positive weight to FCF in long-term incentive contracts, but have reduced the weight they attach to FCF in short-term contracts seemingly in favor of an increased weight to operating cash flows. In addition, I find evidence that firms also increase the weight of earnings in long-term contracts which extends the findings by Carter et al. (2009). Finally, the paper provides empirical support for some observation in the financial press that firms use FCF as a contracting device in executive incentive contracts.

The remainder of the paper is organized as follows. Section II develops the hypotheses. Section III discusses the research design. Section IV presents univariate and multivariate results as well as robustness tests. Section V discusses the implications of the paper and concludes.

2. Prior literature and Hypothesis development

2.1. Anecdotal evidence on the use of FCF in executive compensation contracts

A number of factors suggest a link between FCF and executive compensation. For example, the financial press and anecdotes from proxy statements filed by registrants with the US SEC emphasize the role of FCF in the design of effective compensation plans. For instance, in its 2008 Proxy Statement, Constellation Brands, Inc. states: "the Committee decided to base fiscal 2008 awards on the basis of Free Cash Flow as well as earnings before interest and taxes, or EBIT, in order to diversify the performance criteria and recognize and reward **cash generation** as well as **income generation**."

As another example, Primedia Inc. in its 1999 proxy filing with the SEC indicates that 22.5% percent of CEO's incentive pay is based on the achievement of a pre-specified FCF target. Parker Hannifin Corp. firm also states in its 2006 proxy filing with the SEC that its CEO was "targeted to receive 100% of his Target Incentive Bonus of $600,000 if the firm achieved the 6% target free cash flow margin established by the Committee, adjusted for discretionary pension plan contributions. A minimum payout of 25% of the Target Incentive Bonus was established at a 3% free cash flow margin and a maximum payout of 200% of the Target Incentive Bonus was established at a 9% free cash flow margin". Mulford and Comiskey (2005) also note the trend among US corporations in writing compensation contracts that include FCF performance; they observe that the trend reflects a view among corporations that FCF is an indicator of core performance and shareholder value.

2.2. Optimal contracting theory and the stewardship role of FCF

The contracting literature predicts that a performance measure will play a contracting role in a portfolio of measures if it provides incremental information about manager's effort beyond that contained in the other performance metrics, allows efficient risk-sharing between contracting parties, and/or increases the precision with which actions/efforts expended by managers can be inferred (See, e.g., Gjesdal (1981), Holmstrom (1979), Lambert and Larcker (1987), Banker and Datar (1989), Sloan (1993), and Bushman et al. (1996)). A role for FCF in the design of compensation plans has received little attention; in particular, empirical evidence on the compensation role of FCF is rather sparse. Question then arises whether FCF is contract relevant in the presence of the two most familiar measures of performance—earnings and stock returns.

Predictions of the agency and contracting theory also suggest that FCF will be contract-relevant for the following two reasons. First, FCF measures enterprise success and management's ability to generate cash inflows in excess of disbursements (Dechow (1994)). Intuitively, a better performing manager is more likely to identify and invest firms' resources in projects that provide higher FCF than an average manager, ceteris paribus. In this general sense, FCF is contractible to the extent it is informative about the level of managerial effort or can be used to rank managerial effort level.

Second, FCF affects shareholders' wealth in that it is a source of low-cost fund for value-enhancing activities such as stock-repurchase, growth or positive NPV investment, debt retirement, etc. When a firm funds projects with FCF, it avoids the transaction costs of either equity or debt issuance, and the information asymmetry costs associated with external financing (see for example Myers (1984), Myers and Majluf (1984), Nwaeze et al. (2006), and Faulkender and Wang (2006)). What these reasons suggest is that FCF is also a measure of managerial performance in creating financing options and flexibility. We expect that these attributes that link FCF to shareholder wealth will also increase the importance of FCF in compensation plans.

Furthermore, stock prices are generally viewed to aggregate present and future implications of current managerial actions. A potential corollary is that FCF will have limited contracting relevance in the presence of a stock-price measure, such as stock returns. This is unlikely to be the case, however. First, management may not have direct control over share price performance: Stock price is susceptible to fluctuations in capital markets that can be unrelated to a manager's actions and as such can be a noisy variable for capturing managers' performance (Coughlan and Schmidt (1985)). For instance, recent downward movements in the U.S. stock market have appeared to be driven by the mortgage crisis over which most managers have little control. Such a phenomenon points up the weakness in relying on stock price as a sufficient statistic for managerial effort.

Another appeal of FCF in executive compensation contracts stems from the fact that the share-price effect of managers' successful actions could be more than offset by the consequences of other non-manager concurrent or contemporaneous events that are difficult to isolate from price changes. In other words, stock price movements are not divisible in ways that can isolate the causes across managers and/or non-manager events. For example, share prices can decline for fear of inflation or because of unexpected unemployment news, even when managers are successful in boosting operating cash flows (Mulford and Comiskey (2005)). Similarly, the stock-price effects of managers' actions that affect FCF may be masked by changes in the stock price caused by events that are not under the control of the managers. On the other hand, management has direct control over FCF via operational, marketing, and credit-management decisions. Viewed from such a standpoint, FCF portrays cash-generating ability beyond the level needed to maintain existing business capacity. It is also notable that firms emphasize FCF to, among others, reduce or avoid agency costs of external financing and exercise flexibility in spending decisions. The cost savings and spending discretion FCF confers on firms are unique elements of enterprise performance, distinct from what can be inferred from earnings or stock price. This view motivates the principal argument that FCF has a role in contracts in the presence of earnings and returns. This leads to the formal hypothesis:

H1A: Executive compensation is positively related to FCF in the presence of earnings and stock returns.

2.3. Cross-sectional variation in the contracting role of FCF

Notwithstanding the general premise for the contracting relevance of FCF, the factors and contexts that create internal demand for FCF are likely to vary across firms and differentially affect the contracting weight various firms place on FCF. In other words, variation in factors and contexts that create demand for FCF is expected to create cross-sectional variation in the sensitivity of executive compensation to FCF performance. We explore several such factors and empirical predictions below.

2.3.1.Shareholder value-FCF sensitivity

The internal demand for and/or the importance of FCF in contracts are likely to reflect the extent to which enterprise (shareholder) value is sensitive to the former (Holmstrom (1979)). The SEC in its 1992 report appears to stress this idea by requiring registrants to disclose the basis for compensation and, in addition, highlight corporate performance in terms of total returns to shareholders.[6]

[6] In particular, an excerpt from the SEC's publication in 1992 states, "The annual meeting proxy statement is required to include a report on the registrant's compensation policies with respect to executive officers, the basis for the decisions made with respect to the CEO's compensation for the last fiscal year, and the relationship between executive compensation and the registrant's performance. The report must be made over the individual names of the Compensation Committee members. To complement this discussion of the relationship of executive compensation to performance, companies are required to include with the report a line graph presentation comparing the registrant's cumulative total shareholder return over the prior five years with a performance indicator of overall stock market return, and either a published industry index, or registrant-determined peer comparison." (SEC Annual Report, 1992, p. 57).

Since then, there has been evidence that companies are increasingly structuring their incentive plans to include other observable performance measures that are associated with shareholder value. In its 2008 proxy filed with the SEC, SCHOLASTIC CORP., for example, justifies the use of FCF in contracts on the logic it is critical to the continued development of the company's operating segments, which in turn builds stockholder value (See the Appendix for additional details about the compensation plan). The prospect raised by this view is that firms for which shareholder value (measured in terms of the stock price) is sensitive to FCF will likely place greater contracting weight on FCF, all else being equal. For such firms, the incentive to contract on FCF in addition to (or rather than on) the stock price arises for at least two reasons: First, management has limited control over total share price performance: Stock price is susceptible to fluctuations in capital markets that can be unrelated to a manager's actions and as such can be a noisy variable for capturing managers' performance (Coughlan and Schmidt (1985)). Second, the stock price aggregates information from diverse sources about current and future performance, including managerial effort that generates FCF; however, the stock price is not divisible in ways that can isolate such managerial effort. In some instances, the share-price effect of managers' successful actions on FCF could be more than offset by the consequences of other non-manager contemporaneous events. Together, the controllability and the divisibility problem will make it harder to rely on share price performance to reward managers for the efforts they devote to FCF. In line with this view, we expect FCF to possess greater contracting weight among firms whose enterprise (shareholder) value is sensitive to FCF. The hypothesis is stated as follows:

H2A: The contracting weight of FCF is greater for firms whose enterprise value is sensitive to FCF.

2.3.2.Firm's demand for spending flexibility

The importance of FCF in contracts is also likely to be greater for firms that require more spending flexibility. We identify such firms to be financially constrained firms and firms undertaking frequent stock-repurchase. In particular, there is a view that firms with severe information asymmetry and external financing difficulty will fall back on internally generated funds to overcome their external funding problems and relax restrictions on strategic decisions that could be imposed by lenders (Myers (1984), Myers and Majluf (1984), Fazzari et al. (1988); Nwaeze et al. (2006), and Faulkender and Wang (2006)). For such firms, limitations in external funding options are likely to create an incentive to stress FCF in lieu of the more costly external sources (see for example, Fazzari et al. (1988), Hoshi et al. (1991), Oliner and Rudebusch (1992), Whited (1992), and Bond and Meghir (1994)).
Firms that follow a high repurchase strategy could also emphasize internal liquidity. The payout theory suggests that firms choose between distributing excess cash in the form of dividend or repurchase depending on the firms' demand for flexibility (Jagannathan et al. (2000) and Fenn and Liang (2001)). The argument is that dividend policy is difficult to change; once a firm commits to paying dividends it cannot retract on its promise (Lintner (1956), Oded (2005), Brav et al. (2005)). On the other hand, repurchases provide managers with the option to abort cash payouts and empirical evidence suggests that investors react less negatively to cancellation of repurchases than they do to cancellation of dividends (Oded (2005) and Brav et al. (2005)). Therefore, firms that payout a higher portion of their cash in open market repurchase rather than as dividends could need greater financing flexibility and could, accordingly, put more weight on FCF in executive compensation contracts, as a solution. This view motivates the following hypothesis:

H3A: The contracting weight of FCF is larger for firms with high demand for spending flexibility.

2.3.3.Scope for managerial misuse of FCF

Despite the benefits FCF provides to the firm in terms of reducing agency costs of external financing and providing managers with flexibility in spending decisions, FCF also engenders agency problems (see for example, Jensen (1986) for agency problems associated with FCF). These agency problems stem from the fact that managers have discretion over the deployment of FCF and could abuse such discretion (see for example, Jensen (1986)). Specifically, managers must make decisions about whether to disburse the cash to shareholders, spend it internally (ex: perquisites), use it for external acquisitions, or retain it for future investments (Harford et al. (2008)). When the scope for managerial misuse of FCF is large, managers can waste available internal funds on value-diminishing projects (*See footnote 3 for managerial misuse of FCF noted in the literature*). In such contexts, shareholders will rationally be reluctant to contract with FCF, aware of the agency costs of FCF.

Prior research identifies several mechanisms that reduce the scope for FCF agency problems, including the alignment of managers and shareholders' incentives and/or the effective monitoring of managers' activities.

In particular, the agency literature suggests that providing managers with equity stakes in the firm helps align managers' and shareholders' interests and reduces managers' tendencies to waste FCF (Jensen (1986), Milgrom and Roberts (1992), Agrawal and Jayaraman (1994), and Fenn and Liang (2001)). Thus, I expect FCF contractibility to be positively related to managerial ownership.

With respect to the influence of monitoring on the scope for managerial misuse of FCF, previous studies find that firms with effective monitoring mechanisms are less likely to suffer from FCF problems (Nekhili et al. (2008), Richardson (2006), and Harford et al. (2008)). Therefore, I expect FCF to play a greater role in compensation contracts among firms equipped with effective monitoring mechanisms. In general, I expect the weight of FCF in contracts to be higher for firms with lower scope for managerial misuse of FCF. The related hypothesis is:

H4A: The weight of FCF is positive for firms with characteristics indicating reduced scope for managerial misuse of FCF.

3. Research design

3.1. Earnings, stock returns, and FCF in executive compensation

The first step in the analysis consists of examining the incremental role of FCF in executive compensation in the presence of earnings and stock returns. I also include Operating Cash Flows (CFO) in the analysis because recent studies indicate that in addition to earnings and stock returns, firms contract with CFO (Nwaeze et al. (2006) and Banker et al. (2009)). As in prior studies, I use CEO cash compensation (*CASH_comp*), comprising of salary and bonus, and CEO total compensation (*TOTAL_comp*) defined as the sum of salary, bonus, other annual, restricted stock grants, long-term incentive plan payouts, and value of option grants. I regress CEO compensation levels on FCF levels, earnings levels, CFO levels, and stock returns. For the analysis, I define FCF as cash flow from operations minus dividends and capital expenditures (or the sum of cash from operations (OANCF) minus dividends paid (DVC) and capital expenditures (CAPEX)). I use raw returns as the measure of stock returns and net income before extraordinary items (NI) as the measure of earnings. Raw return is computed as the compounded 12 months return for each firm-year. The complete specification is:

$$Comp_{it} = \alpha_0 + \alpha_1 E_{it} + \alpha_2 CFO_{it} + \alpha_3 Ret_{it} + \alpha_4 FCF_{it} + \sum_{j=1}^{5} \eta^j Controls_{it}^j + \varepsilon_{it}, \quad (1)$$

where, *Comp* denotes executive compensation (*CASH_comp* and *TOTAL_comp*), *E* denotes Earnings, *CFO* denotes cash from operations, *Ret* denotes Raw returns, *FCF* denotes Free Cash Flow, *Controls* denotes control variables (discussed below), ε is error term, *j* denotes control variable indicator, *i* represents firm subscript, and *t* denotes time period.

The set of controls (*Controls*) includes variables previously shown to affect compensation contracts such as firm size (*Size*) defined as the natural logarithm of total assets, firm risk (*Risk*) measured as the standard deviation of sales for the previous five years, and firm's IOS (*Mtb*)computed as the ratio of market-to-book value of equity (Gibbons and Murphy (1992), Baber et al. (1998), Smith and Watts (1992), Gaver and Gaver (1993), Gaver and Gaver (1995), Gaver et al. (1995), Cordeiroand Veliyath (2003), Nwaeze et al. (2006)). As additional controls, I include insider ownership (*Own*) and institutional holdings (*I_HOLD*) because prior literature has found that executive compensation is sensitive to managerial ownership (see for example, Mehran (1994) and Core et al. (1999)) and to the presence of institutional investors (Hartzell and Starks (2003)). I measure *Own* as the percentage of shares outstanding held by the top five executives and *I_HOLD* as the percentage of shares outstanding held by institutional investors. I deflate executive compensation by the lagged salary to be consistent with the manner most firms define performance-based compensation[7] and scale the independent variables by the beginning-of-period total assets to reduce the impact of heteroskedasticity on the inferences. I predict that if FCF is incrementally contract relevant, then α_4 will be positive and significant.

3.2. Economic contexts and the importance of FCF in compensation

3.2.1.FCF-shareholder value sensitivity and FCF contractibility

[7] Firms typically structure incentive payments as a percentage of the executive base salary, conditional on meeting or surpassing the pre-set performance criteria (Nwaeze et al. (2006)).

The next step in the analyses consists of assessing whether the contracting role of FCF is greater for firms whose shareholder value is highly sensitive to FCF. I estimate FCF-shareholder value sensitivity as the coefficient from the reverse regression of FCF per share on price per share (adjusted for stock splits) for each firm.[8] I sort firms into quartiles ranked by regression coefficients where the top quartile denotes high FCF-shareholder value sensitive firms (firms with larger coefficients), the median two quartiles represent median FCF-shareholder value sensitive firms, and the bottom quartile denotes low FCF-shareholder value sensitive firms (firms with smaller coefficients). I use the dummy variable *H_Sens* to denote high FCF-shareholder value sensitive firms, where *H_Sens* takes the value of 1 for the most FCF-shareholder value sensitive firms (firms in the top quartile) and 0 otherwise. Then, I examine the FCF-shareholder value sensitivity hypothesis using model (2)[9] as follows:

$$Comp_{it}= \alpha_0+\alpha_1 E_{it}+ \alpha_2 CFO_{it} +\alpha_3 Ret_{it}+ \alpha_4 FCF_{it} + \beta_1 FCF_{it}\times H\_Sens_{it}+ \sum_{j=1}^{5}\eta^{j} Controls_{it}^{j} +\varepsilon_{it}, \quad (2)$$

I predict that if firms use FCF in contracts because FCF is associated with improvements in shareholders' value not reflected in the stock price, then β_1 will be positive and significant. Other variables in model (2) remain as previously described in model (1).

3.2.2.FCF contractibility and firm's demand for spending flexibility

To test the prediction that FCF is more contract-relevant for firms with high demand for the financing flexibility inherent in FCF, I regress executive compensation on FCF and on the interactions between FCF and indicators of demand for spending flexibility, notably external financing constraint and repurchase payout policy. I proxy for external financing constraint using the Whited and Wu (2006) index [*WW*][10]. I rank the *WW* into quartiles and then measure highly constrained firms with a dummy variable *H_cons* that takes the value of 1 for firms in the top *WW* quartile and 0 otherwise. Furthermore, I measure repurchase payout policy using the repurchase payout ratio [*Repurchase* = (PRSTKC)/(NI – DVP)] ranked into quartiles. I then define a proxy for high repurchase firms, *H_rep*, to take the value of 1 for firms in the top repurchase payout quartile and 0 otherwise. The model is presented below[11].

$$Comp_{it}= \alpha_0+\alpha_1 E_{it}+ \alpha_2 CFO_{it} +\alpha_3 Ret_{it}+ \alpha_4 FCF_{it} + \gamma_1 FCF_{it}\times H\_cons_{it-1} + \gamma_2 FCF_{it}\times H\_rep_{it-1} + \sum_{j=1}^{5}\eta^{j} Controls_{it}^{j} + \varepsilon_{it}, \quad (3)$$

I predict that if FCF is more contract-relevant for firms with high demand for flexibility, then γ_1 and/or γ_2 will be positive and significant. The rest of the variables in model (3) are as defined previously.

3.2.3.Scope for managerial misuse of FCF and FCF contractibility

To test the prediction that firms with a lower scope for the agency costs of FCF will contract more with FCF, I regress *CASH_comp* and *TOTAL_comp* on interactions between FCF and variables indicating the scope for managerial misuse of FCF at a specific firm. In particular, I follow prior research (Richardson (2006), Jensen (1986), Warfield et al. (1995), and Harford et al. (2008)) and focus on two monitoring indicators: insider ownership [*Own*] and institutional ownership [*I_HOLD*].

[8] I use reverse regression to mitigate potential measurement error associated with how FCF is computed. To ensure that results are not dependent on the functional form used to assess the relation between FCF and firm value, I also obtain reverse coefficients from four other regression models of FCF and firm market value. These models include: (a) FCF per share adjusted for splits on market value of equity, (b) FCF per share on market value of equity including dividends, (c) FCF scaled by book value of equity on market-to-book, and (d) FCF scaled by book value of equity on logarithm of market-to-book. In addition, I measure firm FCF value sensitivity using the r-square from each of these regressions. Results obtained using these alternative specifications and measuring FCF value-sensitivity proxy with the r-square are qualitatively similar to results from model (2). To improve estimation while keeping enough sample size, I require that each firm has at least six observations for the variables FCF per share and price per share.

[9] I estimate (2) with main effects for *H_Sens*.

[10] I use the Whited and Wu (WW) index rather than the most commonly used Kaplan and Zingales (KZ) index to measure external financing constraint because Whited and Wu (2006) show that unlike the KZ index, the WW index is consistent with firm characteristics associated with finance constraint.

[11] I also estimate (3) without main effects for *WW*and *REP*; the results are qualitatively similar to those with the main effects and are omitted for brevity.

Due to possible non-linearity in how insider ownership mediates the contracting weight of FCF (see for example, Morck et al. (1988) for related discussions), I sort firms into quartiles ranked by *Own* where the medium two quartiles (i.e., middle 50% of the firm-year ownership) represent firms with "greater" incentive alignment and the top and bottom quartiles proxy for firms with "inadequate" incentive alignment. This partitioning assumes that firms in the bottom quartile are likely to be those for which incentive alignment between managers and shareholders is low, while firms in the top quartile are likely to exhibit entrenchment issues. Thus, both groups are likely to suffer from agency problems and will be reluctant to contract with FCF. On the other hand, I expect firms in the medium two quartiles (i.e., middle 50 percent of firm-year ownership) to be those for which managers' incentives and shareholders' incentives are better aligned. Therefore, such firms will be less likely to suffer from FCF agency issues and should contract more with FCF (See, Morck et al. (1988)). I use the dummy variable *G_align* to denote firms with "*greater*" incentive alignment. In particular, *G_align* takes the value of 1 for firms in the medium two quartiles group (i.e., middle 50% of the firm-year ownership) and 0 otherwise. I use the dummy variable *G_entrench* to denote firms that are likely to suffer from "*entrenchment*" issues. Specifically, *G_entrench* takes the value of 1 for firms in the top quartile group and 0 otherwise.

Based on evidence that institutional investors play an effective role in monitoring managers' actions and in influencing the design of executive compensation contracts (See, Schleifer and Vishny (1986) and Hartzell and Starks (2003)), I sort firms into quartiles ranked by *I_HOLD*where the top quartile represents firms with a high institutional ownership concentration. I use the dummy variable *H_ihold* to categorize high institutional ownership concentration, where *H_ihold* takes the value of 1 for firms in the top quartile of institutional ownership and 0 otherwise. The model is specified as follows:

$$Comp_{it} = \alpha_0 + \alpha_1 E_{it} + \alpha_2 CFO_{it} + \alpha_3 Ret_{it} + \alpha_4 FCF_{it} + \lambda_1 FCF_{it} \times G\_align_{it-1}$$
$$+ \lambda_2 FCF_{it} \times G\_entrench_{it-1} + \lambda_3 FCF_{it} \times H\_ihold_{it-1} + \sum_{j=1}^{5} \eta^{j} Controls_{it}^{j} + \varepsilon_{it}, \quad (4)$$

I predict that if FCF is more contract-relevant for firms with greater incentive alignment between managers and shareholders and/or with more effective external monitoring mechanisms, then λ_1 and/or λ_3 will be positive and significant. Other variables in Model (2) remain as previously described.

3.3. Sample and data

Table 1 reports data collection procedures and descriptive statistics. Initially, I obtain data from the COMPUSTAT, EXECUCOMP, and CRSP annual databases (inclusive of active and inactive firms) that I merge with Institutional Holdings. The initial sample covers the period from 1995 to 2006 and includes 15,854 observations. I exclude financial firms and utilities from the analysis (SIC codes between 6000 and 6999 and SIC codes between 4000 and 4999) to avoid unspecified effects of regulation on the contractibility of FCF. This reduces the sample to 12,728 observations. I also delete firms that have less than 10 consecutive observations to compute FCF share value sensitivity. This screening procedure reduces the sample to 11,724 observations. Moreover, I delete firms with missing or invalid values of FCF, earnings, stock return, market value of equity or total assets, salaries or executive compensation, and with institutional holdings and insider holdings greater than 100%. Furthermore, I winsorize the top and bottom 1% of executive compensation, earnings, and FCF to reduce the influence of outliers. The final sample contains 11,186 firm-year observations and 1,403 firms. Panel A of Table 1 summarizes the screening procedures.

Table 1: Sample selection and descriptive statistics on Executive compensation

This table reports data collection procedures and descriptive statistics for the sample of 11,186 observations used to analyze the relation between executive compensation and Free Cash Flows (*FCF*). Executive compensation variables are obtained from the EXECUCOMP database from 1995 to 2006. Accounting variables including earnings (*E*) are derived from the COMPUSTAT database and raw returns (*Ret*) are gathered from CRSP. Executive cash compensation (*CASH_comp*) is the sum of salary and bonus compensation from year t-1 to year t; Executive total compensation (*TOTAL_comp*) is the sum of salary, bonus, other annual, restricted stock grants, long-term incentive plan payouts, and value of option grants from year t-1 to year t; Earnings (*E*) is measured by income before extraordinary items (NI), scaled by lagged total assets (AT); cash from operations *(CFO)* is computed as cash flows from operations (OANCF) scaled by lagged total assets (AT); Free Cash Flow (*FCF*) is measured as cash from operations (OANCF) ─ dividends (DVC) ─ capital expenditures (CAPEX), scaled by lagged total assets; *Ret* is computed as raw returns.

The firm's IOS (*Mtb*) is computed as the ratio of market-to-book value of equity. The repurchase payout ratio (*REP*) is measured as total repurchases divided by total payout (PRSTKC/(NI-DVP)) ranked into quartiles. I define high repurchase policy as firms with a dummy variable *H_rep* that takes the value of 1 for firms in the top *REP* quartile and otherwise. Insider ownership (*Own*) is measured as the percentage of shares held by the top five executives in the firm. Institutional ownership (*I_HOLD*) is measured by the percentage of shares held by institutional investors.

Panel A describes the sample selection procedure and Panel B reports the mean, standard deviation, median, first, and third quartiles for executive compensation measures, performance indicators, and other variables of interest.

Panel A: Sample selection	
Firm-years available from merging COMPUSTAT, CRSP, EXECUCOMP and Institutional Ownership from 1995-2006	15,854 (2,109)
Firm-years after deleting financials and utilities	12,728 (1,661)
Firm-years after restricting number of FCF per share to at least ten observations	11,724 (1,409)
Final sample after winsorization	11,186 (1,403)

Panel B: Executive (CEO) compensation, performance measures, and other predictor variables

Variable	**Mean**	**Std**	**Median**	**Q25**	**Q75**
Cash Compensation (*CASH_comp*) (*$ thousands*)	1,060.78	1,321.82	722.43	419.45	1,259.28
Salary (*$ thousands*)	519.88	324.94	450.00	290.00	694.90
Total Compensation (*TOTAL_comp*) (*$ thousands*)	4,204.98	23,936.93	1,835.99	857.00	4,143.09
Earnings (*E*)	0.06	0.10	0.06	0.02	0.11
Raw returns (*Ret*)	0.21	0.47	0.18	-0.04	0.41
Free Cash Flow (*FCF*)	3.39	10.51	3.49	-1.13	8.54
Market-to-Book ratio (*Mtb*)	4.49	55.26	2.39	1.60	3.94
Whited and Wu index (*WW*)	-5.89	25.39	-0.48	-0.28	-2.63
Repurchase payout ratio (*REP*)	0.33	3.40	0.00	0	0.37
Insider ownership percentage (*Own*)	0.03	0.07	0.00	0.00	0.02
Institutional ownership percentage (*I_HOLD*)	0.63	0.22	0.65	0.49	0.79

The Whited and Wu (*WW*) is defined in Table 2.

Panel B of Table 1 reports the first and third quartiles, means, medians, and standard deviations of the principal variables of interest for the sample firms. The mean cash compensation is $1.06 million and the average total compensation is 4.2 million. The mean earnings is 5.9% of total assets, the mean stock returns is 20.6%, and the mean *FCF* is 3.4% of firm total assets. The mean *Mtb* is 4.45 and the average repurchase payout ratio is 33%. On average insider ownership is 3% and institutional ownership is 63%, indicating large institutional holdings for the sample firms.

4. Results and implications

4.1. Univariate analyses

Table 2 reports Pearson and Spearman correlations among the main variables of interest. I find a positive and significant correlation between FCF and executive compensation variables (Pearson: 0.078 for *CASH_comp* and 0.117 for *TOTAL_comp;* Spearman: 0.134 for *CASH_comp* and 0.154 for *TOTAL_comp*). This finding is consistent with the expectation that firms contract with FCF. Furthermore, I find a positive and significant correlation between earnings and executive compensation variables (Pearson: 0.07 for *CASH_comp and*: 0.06 for *TOTAL_comp*; Spearman: 0.09 for *CASH_comp* and 0.09 for *TOTAL_comp*). Moreover, the correlations between CFO and executive compensation variables are rather low under the Pearson Product Moment results, but appreciable under the Spearman Rank correlation results (Pearson: -0.019 for *CASH_comp* and -0.007 insignificant for *TOTAL_comp*; Spearman: 0.162 for *CASH_comp* and 0.178 for *TOTAL_comp*). As expected, both executive compensation measures are positively and significantly correlated with stock returns (Pearson: 0.037 for *CASH_comp* and 0.049 for *TOTAL_comp;* Spearman: 0.051for *CASH_comp* and 0.024for *TOTAL_comp*). Overall, the earnings, stock returns, and CFO results are consistent with previous studies documenting a positive association between executive compensation and both accounting and market measures of returns (See for example Lambert and Larcker (1987)).

Next, I find a positive and significant correlation between FCF and *REP* (Pearson: 0.024, Spearman: 0.189), but an insignificant correlation between FCF and *WW*. Finally, FCF is positively and significantly correlated with both *Own* (Pearson: 0.035, Spearman: 0.064) and *I_HOLD* (Pearson: 0.158, Spearman: 0.166) consistent with the view that firms with stronger monitoring mechanisms tend to hold more cash (Harford et al. (2008)).

Table 2: Correlation among variables

This table reports Pearson (below) and Spearman (above) correlations among compensation, performance, and predictor variables that we conjecture affect the cross-sectional relation between executive compensation and Free Cash Flow (*FCF*). Executive (CEO) cash compensation(*CASH_comp*) is defined as the sum of salary and bonus compensation from year t-1 to year t; while Executive (CEO) total compensation(*TOTAL_comp*) is defined as the sum of salary, bonus, other annual, restricted stock grants, long-term incentive plan payouts, and value of option grants from year t-1 to year t. Earnings (*E*) is measured as income before extraordinary items (NI), scaled by lagged total assets (AT); cash from operations *(CFO)* is computed as cash flows from operations (item#308) scaled by lagged total assets (AT); Free Cash Flow (*FCF*) is measured as cash from operations (OANCF) ─ dividends (DVC) ─ capital expenditures (CAPEX), scaled by lagged total assets; *Ret* is computed as raw returns. The firm's IOS (*Mtb*) is computed as the ratio of market-to-book value of equity.The repurchase payout ratio (*REP*) is measured as total repurchases divided by total payout (PRSTKC/(NI-DVP)) ranked into quartiles. I define high repurchase policy firms with a dummy variable *H_rep* that takes the value of 1 for firms in the top *REP* quartile and otherwise. Insider ownership (*Own*) is measured as the percentage of shares held by the top five executives in the firm. Institutional ownership (*I_HOLD*) is measured as the percentage of shares held by institutional investors. Financial constraint is measured with the Whited and Wu (2006) index (*WW*), which is computed as follows:

-0.091**Cash Flow to Total assets* (OANCF/item#6) – **0.062****DIVPOS* (item #127) + **0.021****Long Term Debt to Total assets* (item #9/AT) – **0.044****Natural Logarithm of Total assets* (log (AT)) + **0.102****Industry Sales Growth* ((Σ_{kt} item #12 - Σ_{kt-1} item #12)/ (Σ_{kt-1} item #12)) – **0.035*** *Sales Growth* ((item #12 – lag(item #12)/lag(item #12)). Here the subscript *k* denotes the industry to which the firm belongs to and *t* denotes the time.

Correlations that are not significant at either 1% or 5% level are highlighted in bold.

	I	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII**	**IX**	**X**	**XI**
(I) *FCF*		0.117	0.134	0.455	0.656	0.135	0.298	**0.018**	0.189	0.064	0.166
(II) *TOTAL_comp*	0.033		0.661	0.089	0.178	0.024	0.164	-0.158	0.091	0.075	0.235
(III) *CASH_comp*	0.078	0.089		0.091	0.162	0.051	0.043	-0.169	0.059	0.141	0.143
(IV) *E*	0.503	0.062	0.077		0.563	0.169	0.508	-0.061	0.223	0.079	0.112
(V) CFO	0.061	**-0.007**	-0.019	0.058		0.102	0.372	-0.165	0.219	0.034	0.123
(VI) *Ret*	0.092	0.049	0.037	0.131	**0.002**		0.265	0.106	-0.044	0.059	-0.049
(VII) *Mtb*	**-0.001**	**0.011**	**-0.002**	**-0.004**	**-0.000**	0.038		-0.053	0.143	-0.039	0.084
(VIII)*WW*	**-0.010**	-0.031	-0.020	-0.058	-0.169	0.041	**-0.004**		-0.257	0.275	-0.035
(IX) *REP*	0.024	0.011	**0.004**	0.021	**0.000**	**0.008**	**0.003**	**-0.009**		-0.027	0.093
(X) *Own*	0.035	-0.021	**0.020**	0.056	0.024	0.043	**-0.002**	0.078	**-0.013**		**0.008**
(XI) *I_HOLD*	0.158	0.092	0.111	0.109	0.131	-0.093	**0.009**	0.029	0.024	-0.156	

4.2. Multivariate analyses

4.2.1.General contract-relevance of FCF

Table 3 reports regression results from model (1) that examines the general contract relevance of FCF. The results show that earnings (*E*) is positively and significantly related to cash compensation (2.445, p-value = 0.0001), but is not significantly associated with total compensation. This finding is consistent with a strong association between cash compensation and earnings and with a weak association between total compensation and earnings (See, Baber et al. (1996) and Baber et al. (1998)). Similar to findings by Banker et al. (2009), cash from operations (CFO) is negatively associated with cash compensation (-1.110, p-value = 0.0001) and insignificantly associated with total compensation. Stock return (*Ret*) is positively associated with both cash compensation (0.644, p-value = 0.0001) and total compensation (1.689, p-value = 0.0001). Consistent with my predictions, *FCF* is positively related to cash compensation (0.832, p-value = 0.0001) and total compensation (12.19, p-value = 0.0001). Further, the control variables results are generally consistent with prior findings. Firm size (*Size*) is positively related to both cash compensation (0.309, p-value = 0.0001) and total compensation (1.930, p-value = 0.0001), see for example Coughlan and Schmidt (1985) and Murphy (1985).

Firm risk(*Risk*) is positively associated with total compensation (0.095, p-value = 0.0001), but is not related to cash compensation, consistent with the view that firms with greater business risk pay larger total compensation than firms with lower business risk (Nwaeze et al. (2006)). The firm IOS (*Mtb*) is positively associated with total compensation (0.043, p-value = 0.0001), but is insignificantly related to cash compensation, consistent with the view that firms with more IOS pay higher levels of total compensation and select contracting arrangements that emphasize incentive compensation (See for example Smith and Watts (1992) and Gaver and Gaver (1993)). Insider ownership (*Own*) is positively associated with cash compensation (1.868, p-value = 0.0001), but is not associated with total compensation, consistent with the view that as management ownership increases, managers become more risk-averse and require less equity-based compensation (See, e.g., Mehran (1994)). Finally, institutional ownership (*I_HOLD*)is positively associated with both cash compensation (1.126, p-value = 0.0001) and total compensation (6.532, p-value = 0.0001), see Hartzell and Starks (2003).[12]

I draw three inferences from the results in Table 3: (*i*) the positive coefficient of *FCF* in executive cash and total compensation in the presence of earnings (*E*), stock returns (*Ret*), operating cash flows (*CFO*), and control variables suggests that FCF complements earnings and stock returns in explaining executive contracts; (*ii*) the fact that *FCF* is significant in both cash and total compensation suggests that firms emphasize both short-term and long-term cash generation in executive compensation contracts, and (*iii*) the larger magnitude of the *FCF* coefficient in total compensation relative to that in cash compensation suggests that firms place a stronger emphasis on long-term cash generation. Explanations (ii) and (iii) are both consistent with the view that firms view cash generation as a key indicator of current and future firm success (Dechow (1994)), and in relation to operating cash flow (*OCF*), FCF seems to be a stronger (or cleaner) indicator of the cash generating ability of a firm.

Table 3: Association between executive (CEO) compensation and Free Cash Flow

This table reports the parameter estimates and related t-statistics (in parentheses) for the following regression that examines the association between executive(CEO) compensation and Free Cash Flow (*FCF*) in the presence of other performance indicators like earnings (*E*) and stock returns (*Ret*) and control variables:

$$Comp_{it} = \alpha_0 + \alpha_1 E_{it} + \alpha_2 CFO_{it} + \alpha_3 Ret_{it} + \alpha_3 FCF_{it} + \sum_{j=1}^{5} \eta^j Controls_{it}^j + \varepsilon_{it},$$

Executive cash compensation (*CASH_comp*) is the sum of salary and bonus compensation from year t-1 to year t; Executive total compensation (*TOTAL_comp*) is the sum of salary, bonus, other annual, restricted stock grants, long-term incentive plan payouts, and value of option grants from year t-1 to year t; Earnings (*E*) is measured as income before extraordinary items (NI), scaled by lagged total assets (AT); cash from operations *(CFO)* is computed as cash flows from operations (item#308) scaled by lagged total assets (AT); Free Cash Flow (*FCF*) is measured as cash from operations (OANCF) ─ dividends (DVC) ─ capital expenditures (CAPEX), scaled by lagged total assets; *Ret* is computed as raw returns. Insider ownership (*Own*) is measured as the percentage of shares held by the top five executives in the firm. Institutional ownership (*I_HOLD*) is measured as the percentage of shares held by institutional investors. The firm's IOS (*Mtb*) is computed as the ratio of market-to-book value of equity. Firm risk (*Risk*) is measured as the standard deviation of sales (item #12) from the prior five years, and Firm size (*Size*) is computed as the natural logarithm of total assets (AT).

[12] To control for possible year and firm fixed effects, the coefficients are re-estimated using generalized least squares regressions that control for year and firm fixed effects. The results are qualitatively similar to those based on the OLS estimation presented in the text and are not reported for brevity. To control for possible outliers, I remove observations with studentized residuals that are greater than 2; but the inferences are similar to regressions without such controls.

Variables	Predicted sign	*CASH_comp*	*TOTAL_comp*
Intercept	?	0.562 (3.66)***	-7.774 (-11.62)***
E	(+)	2.445 (7.24)***	1.374 (0.90)
CFO	(-)	-1.111 (-3.94)***	-0.016 (-0.01)
Ret	(+)	0.644 (10.26)***	1.689 (6.09)***
FCF	(+)	0.832 (2.47)**	12.19 (8.26)***
Own	(-)	1.868 (4.54)***	-2.178 (-1.22)
I_HOLD	(+)	1.126 (8.68)***	6.532 (11.57)***
Mtb	(+)	-0.000 (-0.66)	0.043 (4.90)***
Risk	(+)	0.000 (1.55)	0.095 (4.02)***
Size	(+)	0.309 (17.07)***	1.930 (24.36)***
Adjusted R^2		7.16%	11.03%
F-Value		76.91	138.33
Pr>F		<0.0001	<0.0001
N		8,863	8,865

*, **, and *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively.

4.2.2.FCF-shareholder value-sensitivity and FCF contractibility

Table 4 presents regression results from model (2) that tests the FCF-shareholder value sensitivity hypothesis. The coefficient of *FCF* is positive in cash compensation (0.251, p-value=0.0001) and in total compensation (10.46, p-value=0.0001) indicating that the weight of FCF is positive for the base group firms (firms for which shareholder value is not highly sensitive to FCF). More importantly, the coefficient of *FCF× H_Sens* is positive in cash compensation (0.391, p-value = 0.0001), but insignificant in total compensation. These results suggest that firms whose share values are more sensitive to FCF attach a greater weight to FCF in cash compensation contracts. In other words, firms for which FCF has an impact on their enterprise value appear to place larger emphasis on FCF in cash compensation contracts, but not in total compensation contracts.[13]

Table 4: Effect of FCF-shareholder value sensitivity on the contract-relevance of Free Cash Flow

This table reports parameter estimates and related t-statistics (in parentheses) for the following regression that analyzes the effect of FCF-shareholder value sensitivity on the association between executive (CEO) compensation and Free Cash Flow (*FCF*):

$$Comp_{it} = \alpha_0 + \alpha_1 E_{it} + \alpha_2 CFO_{it} + \alpha_3 Ret_{it} + \alpha_4 FCF_{it} + \beta_1 FCF_{it} \times H\_Sens_{it} + \sum_{j=1}^{5} \eta^j Controls_{it}^j + \varepsilon_{it},$$

[13] To address possible feedback effects from our measure of FCF-value sensitivity, I run additional tests in which I include the first and second lags of the value-sensitivity variable in the model. I do not find any significant effects for either lag1 or lag2 values of the variable, whereas the current-period value sensitivity remains significant.

Moreover, to allow for potential non-linearity in the way value-sensitivity affects FCF contract-relevance, I also include interactions between *FCF and M_Sens* in model (2), where *M_Sens* is a dummy variable that takes the value of 1 for firms in the two median quartiles of the coefficients of the regression of FCF per share on price per share and 0 otherwise. I find a positive coefficient for *FCF× M_Sens* in cash compensation and an insignificant coefficient for *FCF× M_Sens* in total compensation. However, the F-test for the difference between the coefficients of *FCF× M_Sens* and *FCF× H_Sens* is insignificant in cash compensation. Finally, I also re-estimated model (2) using generalized least squares regressions to control for year and firm fixed effects. The results are qualitatively similar to those based on the OLS estimation presented in the text and are not reported for brevity.

FCF-shareholder value sensitivity is measured as the coefficient from the reverse regression of FCF per share on price per share (adjusted for stock splits) for each firm. Initially, I ensure that each firm has at least ten observations for each variable. Next, I sort firms by quartiles ranked by regression coefficients where the top quartile represents the most FCF-shareholder value sensitive firms (firms with larger coefficients) and the medium two quartiles denote medium FCF-shareholder value sensitive firms (those for which I expect FCF to have a stronger weight in contracts). I use the dummy variable *H_Sens* to denote high FCF-shareholder value sensitive firms, where *H_Sens* takes the value of one for firms in the top quartile and zero otherwise. I use the dummy variable *M_Sens* to denote medium FCF-shareholder value sensitive firms, where *M_Sens* takes the value of one for firms in the median two quartiles and zero otherwise. Executive cash compensation (*CASH_comp*) is the sum of salary and bonus compensation from year t-1 to year t; Executive total compensation (*TOTAL_comp*) is the sum of salary, bonus, other annual, restricted stock grants, long-term incentive plan payouts, and value of option grants from year t-1 to year t; Earnings (*E*) is measured as income before extraordinary items (NI), scaled by lagged total assets (AT); cash from operations *(CFO)* is computed as cash flows from operations (item#308) scaled by lagged total assets (AT); Free Cash Flow (*FCF*) is measured as cash from operations (OANCF) ─ dividends (DVC) ─ capital expenditures (CAPEX), scaled by lagged total assets; *Ret* is computed as raw returns. Insider ownership (*Own*) is measured as the percentage of shares held by the top five executive's in the firm. Institutional ownership (*I_HOLD*) is measured as the percentage of shares held by institutional investors. The firm's IOS (*Mtb*) is computed as the ratio of market-to-book value of equity. Firm risk (*Risk*) is measured as the standard deviation of sales (item #12) from the prior five years, and Firm size (*Size*) is computed as the natural logarithm of total assets (AT).

Variables	Predicted sign	*CASH_comp*	*TOTAL_comp*
Intercept	?	0.553 (3.89)***	-6.234 (-10.57)***
E	(+)	2.617 (8.57)***	0.393 (0.30)
CFO	(-)	-0.937 (-3.70)***	0.170 (0.16)
Ret	(+)	0.610 (10.77)***	1.776 (7.37)***
FCF	(+)	0.251 (0.74)***	10.46 (7.19)***
FCF×H_Sens	(+)	0.391 (2.82)***	-0.467 (-0.46)
Own	(-)	1.419 (3.82)***	-2.014 (-1.30)
I_HOLD	(+)	1.093 (9.34)***	5.78 (11.79)***
IOS	(+)	-0.000 (-0.63)	0.035 (4.67)***
Risk	(+)	0.000 (1.68)*	0.09 (4.65)***
Size	(+)	0.304 (18.57)***	1.859 (27.13)***
Adjusted R^2		8.31%	13.64%
F-Value		67.03	116.37
Pr>F		<0.0001	<0.0001
N		8,745	8,768

*, **, and *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively.

4.2.3.Firm's demand for spending flexibility and FCF contractibility

Table 5 presents regression results from model (3) that assesses the impact of firm's demand for spending flexibility on the relation between executive (CEO) compensation and FCF. Similar to the findings we reported in Table 3, the weight of FCF remains positive and significant in cash compensation (1,283, p-value = 0.0001) and in total compensation (11.68, p-value = 0.0001). With respect to the effect of spending flexibility on the weight of FCF, the coefficient of *FCF× H_rep* (high repurchase activity firms) is positive in both cash compensation and total compensation (although, significant only in total compensation). This result suggests that high repurchase activity increases the relevance of FCF in long-term compensation contracts. The coefficient of *FCF× H_cons* (highly financially constrained firms) is positive and significant in cash compensation (0.504, p-value = 0.0001), and is negative and significant in total compensation (-1.40, p-value = 0.0364).

A potential explanation for the financing constraint result is that financially constrained firms emphasize short-term cash generation rather than long-term cash generation because they need to survive. Overall, the results suggest that the weight of FCF is greater for firms with high need of spending flexibility.

Table 5:Impact of firm's demand for spending flexibility on the contract-relevance of Free Cash Flow

This table reports parameter estimates and related t-statistics (in parentheses) for the following regression that analyzes the influence of firm demand for spending flexibility on the association between executive (CEO) compensation and Free Cash Flow (*FCF*):

$$Comp_{it}= \alpha_0+\alpha_1 E_{it}+ \alpha_2 CFO_{it} +\alpha_3 Ret_{it}+ \alpha_4 FCF_{it} + \gamma_1 FCF_{it}\times H\_cons_{it-1} + \gamma_2 FCF_{it}\times H\_rep_{it-1} + \sum_{j=1}^{5}\eta^{j} Controls_{it}^{j} + \varepsilon_{it}$$

The influence of firm's demand for spending flexibility is measured by the coefficients of interactions between flexibility proxies and Free Cash Flow (FCF). Flexibility proxies include: (1) the repurchase payout ratio (*REP*) measured with the dummy variable *H_rep* that takes the value of 1 for firms in the top *REP* quartile and 0 otherwise; and (2) the Whited-Wu financial constraint (*WW*) measured by the dummy variable *H_cons* that takes the value of 1 for firms in the top *WW* quartile and zero otherwise. The repurchase payout ratio (*REP*) is defined as total repurchases divided by total payout (PRSTKC/(NI-DVP)). Executive cash compensation (*CASH_comp*) is the sum of salary and bonus compensation from year t-1 to year t; Executive total compensation (*TOTAL_comp*) is the sum of salary, bonus, other annual, restricted stock grants, long-term incentive plan payouts, and value of option grants from year t-1 to year t; Earnings (*E*) is measured as income before extraordinary items (NI), scaled by lagged total assets (AT); cash from operations *(CFO)* is computed as cash flows from operations (item#308), scaled by lagged total assets (AT); Free Cash Flow (*FCF*) is measured as cash from operations (OANCF) ─ dividends (DVC) ─ capital expenditures (CAPEX), scaled by lagged total assets; *Ret* is computed as raw returns. Insider ownership (*Own*) is measured as the percentage of shares held by the top five executives in the firm. Institutional ownership (*I_HOLD*) is measured by the percentage of shares held by institutional investors. The firm's IOS is computed as the ratio of market-to-book (*Mtb*) value of equity. Firm risk (*Risk*) is measured as the standard deviation of sales (item #12) from the prior five years, and firm size (*Size*) is computed as the natural logarithm of total assets (AT).

Variables	Predicted sign	*CASH_comp*	*TOTAL_comp*
Intercept	?	-0.002 (-0.01)	-18.04 (-17.04)***
E	(+)	2.637 (7.21)***	3.146 (1.92)*
CFO	(-)	-0.938 (-3.31)***	-0.828 (-0.66)
Ret	(+)	0.591 (9.40)***	1.899 (6.68)***
FCF	(+)	1.283 (3.42)***	11.68 (6.97)***
FCF×H_cons	(+)	0.504 (9.92)***	-1.40 (-2.21)**
FCF×H_rep	(+)	0.228 (0.34)	11.04 (3.76)***
Own	(-)	1.983 (4.87)***	-3.876 (-2.14)**
I_HOLD	(+)	1.063 (8.13)***	4.946 (8.55)***
Mtb	(+)	-0.000 (-0.64)	0.041 (4.56)***
Risk	(+)	0.000 (1.75)*	0.000 (1.87)*
Size	(+)	0.379 (14.55)***	3.029 (26.07)***
Adjusted R^2		8.11%	12.80%
F-Value		46.90	77.41
Pr>F		<0.0001	<0.0001
N		8,843	8,848

*, **, and *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively.

4.2.4.Scope for managerial misuse of FCF and FCF contractibility

Table 6 presents regression results from model (4) that analyzes the scope for managerial misuse of FCF hypothesis. The results show that the coefficient of FCF is negative for cash compensation (-1.086, p-value = 0.0695) and positive for total compensation (7.211, p-value = 0.0001). This result suggests that the base group—*firms with low incentive alignment* and *low institutional ownership concentration*—is reluctant to contract with FCF in cash compensation, but not in total compensation. Next, I find that the coefficient of *FCF×G_align* is positive in both cash compensation (3.315, p-value = 0.0001) and total compensation (8.560, p-value = 0.0001). This result suggests that firms feel more comfortable using FCF as a contracting device when management's incentives are better aligned with shareholders' incentives possibly because in such context, managers are more likely to use FCF for value-maximizing purposes rather than wasting it on perquisites. Furthermore, the coefficient of *FCF×G_entrench* is positive and marginally significant in cash compensation (1.374, p-value = 0.0981), but is insignificant in total compensation. This result suggests that firms with potential entrenchment issues are reluctant to contract with FCF. Together, the insider ownership results (*FCF×G_align*and *FCF×G_entrench*) indicate that insider ownership has a non-linear mediating effect on the contracting weight of FCF (See Morck et al. (1988) for arguments that insider ownership has a non-linear effect on firm performance).

Finally, the coefficient of *FCF×H_ihold* is positive in total compensation (6.686, p-value = 0.0206), but is insignificant in cash compensation.[14] This result suggests that firms with concentrated institutional ownership feel more comfortable contracting with FCF and increase their reliance on FCF as a contracting device, especially in long-term contracts. In addition, the institutional investor concentration result is consistent with the view that institutional investors are more influential towards corporate policy when their ownership is concentrated (Schleifer and Vishny (1986) and Hartzell and Starks (2003)). Overall, Table 6 results indicate that FCF is more contract-relevant when firms are equipped with mechanisms that can help reduce the scope for managerial misuse of FCF.

Table 6: Effect of the scope for managerial misuse of FCFon the contract-relevance of Free Cash Flow

This table reports parameter estimates and related t-statistics (in parentheses) for the following regression that analyzes the impact of the scope for managerial misuse of FCF on the association between executive (CEO) compensation and Free Cash Flow (*FCF*):

$$Comp_{it} = \alpha_0 + \alpha_1 E_{it} + \alpha_2 CFO_{it} + \alpha_3 Ret_{it} + \alpha_4 FCF_{it} + \lambda_1 FCF_{it} \times G\_align_{it-1} + \lambda_2 FCF_{it} \times G\_entrench_{it-1}$$
$$+ \lambda_3 FCF_{it} \times H\_ihold_{it-1} + \sum_{j=1}^{5} \eta^j Controls_{it}^j + \varepsilon_{it}$$

The impact of the scope for managerial misuse of FCF on FCF contractibility is measured by the coefficients of interactions between characteristics indicating reduced scope for managerial misuse of FCF and FCF. I examine two characteristics, incentive alignment measured with insider ownership (*Own*) and monitoring proxied with institutional ownership concentration (*I_HOLD*). For the analysis, I sort firms by quartiles ranked by insider ownership because of non-linearity issues with respect to insider ownership, where the bottom quartile represents firms with "weak" incentive alignment, the top quartile represent firms with possible "entrenchment" issues, and the medium two quartiles denote firms with "greater" incentive alignment.

I use the dummy variables *G_align* to denote "greater" incentive alignment, *G_entrench* to measure "entrenchment", and the base group comprises of firms with "weak" incentive alignment. In particular, *G_align* takes the value of one for firms in the medium two quartiles and zero otherwise, and *G_entrench* takes the value of 1 for firms in the top quartile of ownership and 0 otherwise. To measure institutional investor concentration, I sort firms by deciles where the top two deciles represent firms with "high"institutional ownership concentration and use the dummy variable *H_ihold* to categorize high institutional ownership concentration, where *H_ihold* takes the value of 1 for firms in the top two deciles of institutional ownership and zero otherwise.

[14] I re-estimated model (4) using generalized least squares regressions to control for year and firm fixed effects. The results are qualitatively similar to those based on the OLS estimation presented in the text and are not reported for brevity.

Executive cash compensation (*CASH_comp*) is the sum of salary and bonus compensation from year t-1 to year t; Executive total compensation (*TOTAL_comp*) is the sum of salary, bonus, other annual, restricted stock grants, long-term incentive plan payouts, and value of option grants from year t-1 to year t; Earnings (*E*) is measured as income before extraordinary items (NI), scaled by lagged total assets (AT); cash from operations *(CFO)* is computed as cash flows from operations (item#308) scaled by lagged total assets (AT); Free Cash Flow (*FCF*) is measured as cash from operations (OANCF) ─ dividends (DVC) ─ capital expenditures (CAPEX), scaled by lagged total assets; *Ret* is computed as raw returns. Insider ownership (*Own*) is measured as the percentage of shares held by the top five executives in the firm. Institutional ownership (*I_HOLD*) is measured by the percentage of shares held by institutional investors. The firm's IOS (*Mtb*) is computed as the ratio of market-to-book value of equity. Firm risk (*Risk*) is measured as the standard deviation of sales (item #12) from the prior five years, and firm size (*Size*) is computed as the natural logarithm of total assets (AT).

Variables	Predicted sign	*CASH_comp*	*TOTAL_comp*
Intercept	?	0.543 (3.53)***	-7.810 (-11.67)***
E	(+)	2.465 (5.32)***	1.617 (1.10)
CFO	(-)	-1.104 (-3.92)***	0.295 (0.24)
Ret	(+)	0.647 (6.34)***	1.704 (6.16)***
FCF	(-)	-1.086 (-1.79)*	7.211 (2.67)***
FCF×G_align	(+)	3.315 (4.90)***	8.560 (2.85)***
FCF×G_entrench	(-)	1.374 (1.82)*	-1.009 (-0.30)
FCF×H_ihold	(+)	-0.245 (-0.37)	6.686 (2.32)**
Own	(-)	2.033 (4.78)***	-0.698 (-0.38)
I_HOLD	(+)	1.096 (8.09)***	6.044 (10.24)***
Mtb	(+)	-0.000 (-0.66)	0.042 (4.73)***
Risk	(+)	0.000 (1.48)	0.097 (4.09)***
Size	(+)	0.314 (17.21)***	1.962 (24.68)***
Adjusted R^2		7.25%	11.37%
F-Value		63.95	104.39
Pr>F		<0.0001	<0.0001
N		8,862	8,864

*, **, and *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively.

4.3. Additional analysis: Sarbanes-Oxley and the contracting role of FCF

Empirical studies suggest that recent financial reforms have improved financial reporting quality. For instance, Cohen et al. (2008) shows that there is less accruals manipulation after the passage of SOX. Chang et al. (2009) document an improvement in perceived earnings quality following the passage of SOX. In addition, recent evidence suggests that improvements in earnings quality following recent financial reporting reforms have affected the contracting role of earnings. In particular, Carter et al. (2009) reports that following improvements in earnings quality after the passage of SOX, firms have increased the weight of earnings in bonus contracts. However, what is not clear is the extent to which the financial reporting changes implemented after SOX affect the contracting role of FCF.

Meantime, there are reasons to believe SOX affects the precision with which FCF reflects managerial effort. For instance, Section 404 of SOX requires executives and an external auditor to separately assess and certify the effectiveness of the firm's internal controls over financial reporting (Coates (2007) and Prentice (2009)). Recent evidence documents that this aspect of SOX has been largely successful in promoting financial reporting quality. In particular, Singer and You (2009) examine whether the implementation of Section 404 of SOX has helped to improve financial statement reliability. The authors find that abnormal accruals decrease while current earnings ability to predict future cash flows increases after the implementation of Section 404.

Their findings suggest that Section 404 of SOX has led to improvements in the reliability of financial statements in general and possibly to the cash flow statement in particular. If this aspect of SOX and other governance practices required under SOX has led to greater precision in the ability of FCF to reflect executive's effort related to both liquidity/credit management and attractiveness of current investments, then the contracting role of FCF can be expected to increase after SOX.

To examine whether SOX has affected the contract-relevance of FCF, I regress *CASH_comp* and *TOTAL_comp* on interactions between FCF and SOX as shown in Model (5). I also include an interaction between earnings and SOX based on the view that firms have increased the weight of earnings in contracts after the passage of SOX. Furthermore, I include an interaction between CFO and SOX based on the argument that improvements in financial reporting quality will affect the precision with which CFO reflects operating cash flows. The model is as follows:

$$Comp_{it} = \alpha_0 + \alpha_1 E_{it} + \alpha_2 CFO_{it} + \alpha_3 Ret_{it} + \alpha_4 FCF_{it} + \gamma_1 FCF_{it} \times SOX_{it} + \gamma_2 E_{it} \times SOX_{it} + \gamma_3 CFO_{it} \times SOX_{it} + \sum_{j=1}^{5} \eta^j Controls_{it}^j + \varepsilon_{it}, \quad (5)$$

I measure SOX using a dummy variable, *SOX* that takes the value of one for years after SOX (2002-2006) and 0 otherwise. The coefficient of interest is γ_1. The rest of the variables in model (5) are as defined previously.

Table 7 presents regression results from model (5) that examines the influence of SOX on the contracting role of FCF. The results show that the coefficient of $E \times SOX$ is positive and significant in both cash compensation (6.132, p-value = 0.0001) and total compensation (14.43, p-value = 0.0001). This result is consistent with the evidence presented by Carter et al. (2009) of an increase in the contracting weight of earnings following the passage of SOX. Moreover, the coefficient of $CFO \times SOX$ is positive and significant for cash compensation (0.940, p-value = 0.0695), but is insignificant for total compensation. This result suggests that firms have increased the weight of CFO in bonus contracts after the passage of SOX. With respect to the effect of SOX on FCF, the results show that the coefficient of $FCF \times SOX$ is negative and significant in cash compensation (-2.078, p-value = 0.0001), but is insignificant in total compensation.[15]

I draw several inferences from Table 7 results. First, the lower weight attached to FCF in cash compensation after SOX suggests that improvements in accounting quality following the passage of SOX have led firms to reduce their reliance on FCF as a performance metric in bonus contracts, and rather focus on operating cash flows as their cash generating indicator. Second, the insignificant effect of SOX on the contract-relevance of FCF in total compensation suggests that firms continue to rely on FCF as a performance metric in long-term contracts after SOX. In other words, improvements in financial reporting have not significantly reduced the role of FCF in long-term incentive contracts. The FCF findings coupled with the evidence that firms have increased the weight of earnings in both cash and total compensation suggest the following: (i) firms attach a significant importance to liquidity and working capital management in long-term incentives contracts; and (ii) firms may have used FCF in bonus contracts in part because it is less prone to accounting manipulations (Mulford and Comiskey (2005)).

4.4. Robustness tests

I conduct additional tests to assess whether the results are affected by problems such as multicollinearity, or are driven by industries practices or by my definition of FCF. I test for multicollinearity among the independent variables by including Variance Inflation Factors (VIF) factors in each regression. I do not observe any VIF coefficient greater than 5, the cutoff point in any of the regressions, which suggests there is no serious multicollinearity problem. I include year fixed-effects and firm fixed-effects in the regressions to control for any firm-specific or year-specific effect on the analyses. The results are qualitatively similar to those obtained without controlling for firm or year fixed effects. Therefore, the inferences concerning the general FCF-contractibility, FCF-sensitivity, financing flexibility, scope for managerial misuse of FCF hypotheses, and impact of SOX on FCF are unchanged. I also conduct additional tests with industry dummies to control for any specific industry effect and find qualitatively similar results. Furthermore, I conduct the tests with an alternative definition of *FCF*, notably cash from operations (*CFO*) minus capital expenditures (*CAPX*).

[15] We re-estimated model (5) using generalized least squares regressions to control for year and firm fixed effects. The results are qualitatively similar to those based on the OLS estimation presented in the text and are not reported for brevity.

The results from this alternative definition are similar to those found when also subtracting dividends from *CFO*. The inferences for FCF-value-sensitivity, demand for spending flexibility, scope for managerial misuse of FCF, and influence of SOX on FCF hypotheses are also similar.

Table 7: Influence of the Sarbanes-Oxley Act on the contract-relevance of Free Cash Flow

This table reports the parameter estimates and related t-statistics (in parentheses) for the following regression that examines the influence of the Sarbanes-Oxley Act (*SOX*) on the association between executive compensation and Free Cash Flow (*FCF*) in the presence of other performance indicators like earnings (*E*) and stock returns (*Ret*) and control variables:

$$Comp_{it} = \alpha_0 + \alpha_1 E_{it} + \alpha_2 CFO_{it} + \alpha_3 Ret_{it} + \alpha_4 FCF_{it} + \gamma_1 FCF_{it} \times SOX_{it} + \gamma_2 E_{it} \times SOX_{it} + \gamma_3 CFO_{it} \times SOX_{it} + \sum_{j=1}^{5} \eta^j Controls_{it}^j + \varepsilon_{it}$$

The variable *SOX* is computed as a dummy variable that takes the value of 1 for years after the passage of the Sarbanes-Oxley Act (2002-2006) and 0 otherwise. Executive cash compensation (*CASH_comp*) is the sum of salary and bonus compensation from year t-1 to year t; Executive total compensation (*TOTAL_comp*) is the sum of salary, bonus, other annual, restricted stock grants, long-term incentive plan payouts, and value of option grantsfrom year t-1 to year t;Earnings (*E*) is measured by income before extraordinary items (NI), scaled by lagged total assets (AT); cash from operations *(CFO)* is computed as cash flows from operations (item#308) scaled by lagged total assets (AT); Free Cash Flow (*FCF*) is measured as cash from operations (OANCF) ─ dividends (DVC) ─ capital expenditures (CAPEX), scaled by lagged total assets; *Ret* is computed as raw returns. Insider ownership (*Own*) is measured as the percentage of shares held by the top five executives in the firm. Institutional ownership (*I_HOLD*) is measured by the percentage of shares held by institutional investors. The firm's IOS(*Mtb*) is computed as the ratio of market-to-book value of equity. Firm risk (*Risk*) is measured as the standard deviation of sales (item #12) from the prior five years, and firm size (*Size*) is computed as the natural logarithm of total assets (AT).

Variables	Predicted sign	*CASH_comp*	*TOTAL_comp*
Intercept	?	1.009 (6.52)***	-6.896 (-10.13)***
E	(+)	1.091 (2.47)**	-3.267 (-1.68)*
E_SOX	(+)	6.132 (8.16)***	14.43 (4.38)***
CFO	(-)	-1.418 (-4.23)***	-1.016 (-0.67)
CFO_SOX	(+)	0.940 (1.82)*	3.752 (1.64)
Ret	(+)	0.387 (5.29)***	1.468 (4.49)***
FCF	(+)	1.956 (4.29)***	12.50 (6.21)***
FCF_SOX	(?)	-2.078 (-2.60)***	-3.499 (-1.00)
Own	(-)	1.661 (4.10)***	-2.398 (-1.35)
I_HOLD	(+)	0.834 (6.42)***	5.820 (10.20)***
Mtb	(+)	-0.000 (-0.72)	0.041 (4.70)***
Risk	(+)	0.000 (1.61)	0.000 (1.66)
Size	(+)	0.277 (15.39)***	1.860 (23.49)***
Adjusted R^2		9.49%	11.71%
F-Value		72.46	91.41
Pr>F		<0.0001	<0.0001
N		8,863	8,865

*, **, and *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively.

5. Conclusion

In this paper, I have examined the contracting role of FCF in executive (CEO) compensation. I contended that FCF is contract-relevant in the presence of earnings and stock returns because of the following reasons.

First, FCF provides additional information about management's performance that complements information contained in earnings and stock returns. Next, FCF facilitates risk-sharing between contracting parties since it is less susceptible to market fluctuations and delayed response. I further hypothesized that the contract-relevance of FCF varies cross-sectionally with the sensitivity of shareholder value to FCF, the firms' demand for spending flexibility, and the scope for managerial misuse of FCF. The FCF-shareholder value sensitivity hypothesis predicts that firms for which FCF is highly associated with firm performance contract more with FCF. The firms' demand for spending flexibility hypothesis predicts that firms with high demand for financing flexibility contract more with FCF because of the flexibility FCF provides firms in terms of project selection and financing. The scope for managerial misuse of FCF hypothesis predicts that firms equipped with characteristics indicating reduced scope for manager's wasteful deployment of FCF contract more with FCF because such firms are less likely to suffer from the agency costs of FCF. I find results consistent with the FCF-shareholder value sensitivity, the demand for spending flexibility, and the scope for managerial misuse of FCF hypotheses. Overall, the results show that FCF has incremental contribution above earnings and stock returns and suggest that compensation committees use FCF-performance incentives when demand for flexibility and FCF-shareholder value sensitivity are high, and when the scope for managerial misuse of FCF is low.

In additional analyses, I have examined whether changes in the financial reporting environment following the passage of the Sarbanes-Oxley Act (SOX) have affected FCF contractibility. This test was motivated by the view that improvements in financial reporting quality following the passage of SOX have led to changes in executive contracting arrangements. I conjectured that if improvements in reporting quality noted after SOX affect contracting parties' ability to more precisely infer executives' liquidity/working capital management efforts, firms will contract more with FCF. The results show that after SOX, firms maintain a positive weight to FCF in long-term incentive contracts, butattach a lower weight to FCF in bonus contracts.

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APPENDIX

Exhibit 1: FIRMS WITH FREE CASH FLOW AS A COMPENSATION METRIC

Company	Executive Compensation Agreement
CODA OCTOPUS GROUP, INC. CIK: 0001334325 TICKER: CDOC EXCHANGE: OTCBB SIC CODES: 3812 – INDUSTRY TYPE: Construction Services SECTOR ID: Capital Goods REPORT PERIOD: July 1, 2008 SEC FILE NUMBER: 000-52815	The Compensation Committee, working with senior management of the Company, has compiled the following list of parameters (listed in no particular order) for the Compensation Committee to use as it evaluates the performance of the Chief Executive Officer: earnings per share; stockholder value; core business growth, revenue growth, revenue diversification; **FREE CASH FLOW**; the strength of the Company's balance sheet; intellectual property exploitation; legal and regulatory compliance; the extent to which budgetary objectives are met; the development of a strategic vision and a strategic plan; organizational transparency; increasing revenues, earnings; improving operating margins and successful cost reduction efforts; expanding the number of geographic markets served; rolling out new products and programs; developing new products; and developing leadership talent.
RUSS BERRIE & CO INC ADDRESS: OAKLAND, New Jersey, 07436 CIK: 0000739878 TICKER: RUS EXCHANGE: NYSE SIC CODES: 3942 - Dolls and stuffed toys INDUSTRY TYPE: Recreational Products SECTOR ID: Consumer Cyclical	The performance criteria shall be as follows, individually or in combination: (i) net earnings; (ii) earnings per share; (iii) revenues; (iv) sales; (v) operating income; (vi) earnings before interest and taxes (EBIT); (vii) earnings before interest, taxes, depreciation and amortization (EBITDA); (viii) segment profit, as defined in the Company's financial statements; (ix) achievement of working capital targets; (x) return on equity; (xi) return on capital or return on assets; (xii) expenses or expense ratios; (xiii) cash flow, **FREE CASH FLOW**, cash flow return on investment, net cash provided by operations, or economic profit created; (xiv) market price per share; (xv) total return to stockholders, and (xvi) specific strategic or operational business criteria, including market penetration, geographic expansion, new concept development goals, new products, new projects or new ventures, customer satisfaction, staffing, training and development goals, goals relating to acquisitions, divestitures, affiliates and joint ventures.
FOAMEX INTERNATIONAL INC ADDRESS: LINWOOD, Pennsylvania, 19061 CIK: 0000912908 TICKER: FMXL EXCHANGE: Pink Sheets SIC CODES: 3086 - Plastics foam products INDUSTRY TYPE: Containers & Packaging SECTOR ID: Basic Materials	The amount payable with respect to an incentive award intended to qualify as performance-based compensation shall be determined in any manner permitted by Section 162(m) of the Code. The performance goals upon which the payment or vesting of any incentive award intended to qualify as performance-based compensation (other than options and stock appreciation rights) shall be objective and relate to one or more of the following performance measures: (i) net earnings or net income (before or after taxes), (ii) basic or diluted earnings per share (before or after taxes), (iii) net revenue or net revenue growth, (iv) gross profit or gross profit growth, (v) operating profit (before or after taxes), (vi) return measures (including, but not limited to, return on assets, capital, invested capital, equity or sales), (vii) cash flow (including, but not limited to, operating cash flow, **FREE CASH FLOW**, and cash flow return on capital), (viii) earnings before or after taxes, interest, depreciation and/or amortization, (ix) gross or

	operating margins, (x) productivity ratios or improvement, (xi) share price (including, but not limited to, growth measures and total stockholder return), (xii) expense targets, (xiii) margins, (xiv) operating efficiency, (xv) objective measures of customer satisfaction, (xvi) working capital targets, (xvii) measures of economic value added, (xviii) inventory control, (xix) pay down of debt or net debt reduction, (xx) unit volume, and (xxi) net sales or sales or product volume growth.

Exhibit 1 (cont...):

CONSTELLATION BRANDS, INC. ADDRESS: FAIRPORT, New York, 14450 CIK: 0000016918 TICKER: STZ EXCHANGE: NYSE SIC CODES: 2080 - Beverages INDUSTRY TYPE: Beverages (Alcoholic) SECTOR ID: Consumer/Non-Cyclical	Also in April 2007, the Committee approved amendments to the Annual Management Incentive Plan to (i) expand the list of potential performance criteria from which the Committee can select under the plan, (ii) increase the maximum award that we can issue under the plan to $5 million, and (iii) clarify certain other provisions and definitions used in the plan. Our stockholders approved these amendments on July 26, 2007. In May 2007, the Committee established the parameters of the executive officer program under the Annual Management Incentive Plan for fiscal 2008. While the bonus opportunity percentages remained unchanged for the participating executive officers, the Committee decided to base fiscal 2008 awards on the basis of **FREE CASH FLOW** as well as earnings before interest and taxes, or EBIT, in order to diversify the performance criteria and recognize and reward cash generation as well as income generation. In addition, depending on the executive officer's level of responsibilities, an executive officer's performance criteria weightings may be based entirely on our consolidated performance or on a combination of corporate-wide and divisional results.
SCHOLASTIC CORP CIK: 0000866729 TICKER: SCHL EXCHANGE: Nasdaq National Mkt SIC CODES: 2731 - Books publishing INDUSTRY TYPE: Printing & Publishing SECTOR ID: Services	On July 17, 2007, the HRCC set the fiscal 2008 annual bonus targets for executive officers and senior management, including the Named Executive Officers. For fiscal 2008, for the Company performance portion, these targets have been based upon earnings per share (EPS) and **FREE CASH FLOW**, and for the portion based on business unit performance, the targets were, in addition, based upon the profitability of the relevant business unit ("Division Operating Profit"). **FREE CASH FLOW**, as defined by the Company, consists of net cash provided by the Company's operating activities less spending for capital expenditures, pre-publication and pre-production costs. Consistent with prior years, the HRCC considered EPS and **FREE CASH FLOW** as two measures, among others, that are used by investors and analysts who follow the Company to evaluate the Company's annual performance.

Sources: Company filings with the Securities and Exchange Commission on the forms and dates indicated.