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Abstract

This study examines the choice of operating cash flow (OCF) performance measure in incentive compensation contracts. The analysis is motivated in part by the recent trend in the use of OCF measure in contracts and by the paucity of empirical evidence on the reasons firms select OCF measure in contracts when the stock price and standardized earnings reports that aggregate more diverse information about firm performance are available at low cost. I find that growth firms and firms with low relative earnings quality are more likely to contract on OCF performance; financially constrained firms seem averse to contracting on OCF measure. Moreover, governance structures that impact optimal contracts positively affect the likelihood of contacting on OCF performance. Additional analysis shows that the likelihood of a particular plan-type (*OCF-bonus* plan versus *OCF-long-term plan*) is related to firms' business conditions.

Key Words: Incentive contracts, operating cash flow, performance measurement

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The Choice of Operating Cash Flow in Incentive Compensation

Introduction

The use of operating cash flow (OCF) performance measure in incentive compensation contracts is a recent innovation. Recent surveys of compensation plans reveal a strong trend among US firms to use OCF performance measure in lieu of, or in addition to the more traditional income and market measures in incentive plans (e.g., Mulford [2004]). Banker, Huang, and Natarajan [2006] also document increasing importance of OCF in incentive contracts.

This study focuses on a unique sample of firms that include OCF metrics in their incentive contracts to examine factors that affect the choice of OCF performance measure in incentive plans. I perform several tests to explain such a choice. In this sense, the analysis focuses on "why" firms use OCF in incentive contracts. Using insights from the theory on the choice of performance measures in contracts (e.g., Holmstom [1979], Lambert and Larcker [1987], Banker and Datar [1989], Bushman and Injejikian [1993], Sloan [1993]), I generate predictions about contracting factors likely to affect the choice of OCF performance measure in contracts. The prediction is: A firm is more likely to contract on OCF performance when (1) growth comprises a large portion of its value, (2) it faces financing difficulty, and/or (3) the relative stewardship quality of its earnings is low. In these contexts, OCF performance (in the sense of the principal-agent theory) contains contract-relevant information over and above what is in earnings and stock price measures.

Results of the analysis can be summarized thus: Growth firms and firms with poor relative earnings quality are more likely to design incentive plans that include OCF metric; by contrast, financially constrained firms are less likely to contract on OCF metric. On the premise that the structure of corporate governance affects the choice of performance measures in contracts, I extend the analysis to consider the effect of several governance variables on the choice of OCF measure in

contracts. What I find is that structures that impact optimal contracting (*board independence*, *fraction of shares held by the CEO, fraction of shares held by institutions*, *board size* for larger and more complex firms) load positively on the likelihood of contracting on OCF performance; by contrast, *classified board* and *CEO duality* reduce such likelihood. Further analysis shows that, for adopters, growth firms are more likely to include OCF performance measure in bonus and long-term plans concurrently; firms with low relative earnings quality are more likely to include OCF performance measure in bonus plan but only weakly likely to use OCF metric in long-term plans; financially constrained firms are less likely to contract on OCF metric in bonus or long-term plan.

In a supplementary analysis, I review the proxy statements and *Management Discussion and Analysis* section of Form 10-Ks (MD&A) of 528 firms with acute financing difficulty for insight into their incentive plans and strategies for dealing with their funding difficulty, noting the apparent disinclination by such firms to contract on OCF performance. Of the 528 firms reviewed, only six have OCF-incentive plans; and, only two of the six firms attach meaningful weights on OCF performance. The MD&A for the firms shows such firms often resort to debt restructuring with intense effort to obtain more external funds, albeit, at prohibitive costs and with severe restrictions on enterprise activities. It is not clear whether such firms simply ignore the incentive benefits of OCF or rely on alternative incentive systems to deal with their financing problems.

This study uses simple classification schemes to provide initial positive evidence on the contexts and factors that impact the choice of OCF performance measure in incentive contracts. In particular, it shows that business growth and concern over earnings quality play important roles in a firm's decision to include OCF measure in incentive contracts; financing constraint makes a firm less likely to include OCF measure in contracts. The analysis is a departure from conventional approaches that focus on the relative weights of signals under an assumed functional form of the

incentive contracts; in present case, the study takes a particular compensation practice as the dependent variable and sheds light on factors that impact such a practice. The study also draws attention to the burgeoning use of OCF in incentive contracts, which may represent a trend in substitution from one accounting performance measure toward another in incentive contracts.

Next section outlines competing propositions about the incentives for OCF-based plan. Section II defines firm characteristics predicted to affect the likelihood of OCF-based plan. Section III describes the sample and data. In Section IV presents the results. Section V concludes the study.

2. Motivation and Predictions

Incentive compensation models traditionally focus on earnings and stock price measures as the primary inputs in incentive contracts. Analyses of how both measures are used in contracts draw from the "informativeness principle" advanced by Holmstrom [1979] which states that a performance measure is contract relevant if it is incrementally informative about managers' stewardship or facilitates efficient risk sharing between contracting parties. Much of the empirical analysis focuses on the relative contracting weights of the two measures or on factors that modify their contracting roles (e.g., Antle and Smith [1986], Lambert and Larcker [1987], Jensen and Murphy [1990], Bushman and Indjejikian [1993]; Sloan [1993], Smith and Watts [1992], Ittner, Larcker, and Rajan [1997], Gaver and Gaver [1998]).

OCF is a measure of the net cash provided by operations and, in that sense, constitutes the cash component of income. Firms began providing the information in the *Statement of Cash Flows* as part of the full set of financial statements in 1988 (see, FASB [1987]). The use of OCF metric in contracts followed closely, with 385 sample plan users in 2006, up from 35 in 1992. Why firms include the measure in contracts when the stock-price and standardized earnings reports are available at low cost is unclear. The standard principal-agent models offer general

guidelines for considering the importance of a performance signal in contracts. Sloan [1993] explores factors that determine the relevance of earnings in contracts that already include the stock price measure. In his analysis, earnings measure is relevant in contracts because it reflects firm-specific information *cum* managers' contributions that cannot be reliably inferred from the stock price. In an analysis that treats the stock price as an endogenous variable that impounds all available information, Bushman and Indjejikian [1993] show that earnings measure is relevant in contracts precisely because it contains only a subset of information in price. In their setting, contracting on earnings performance allows a firm to provide a better mix of incentives and filter uncontrollable output risk in price. More generally, their results imply that the importance of a performance measure in contracts will depend not only on the characteristics of the firm and managers, but also on the relative desirability of the underlying managerial action.

More recent studies explore contexts in which performance measures besides earnings and stock price measures are included in contracts. Bushman and Smith [2001] explain that firms will substitute toward additional performance measures when earnings and stock price taken together poorly capture the contribution of important elements of managerial action to firm value. This idea underlies much of the recent tests of the contracting role of performance measures besides earnings and stock price (e.g., Bushman, Indjejikian, and Smith [1996], Ittner, Larcker, and Rajan [1997], Banker, Potter, and Srivinasan [2000]). For example, Bushman et al. [1996] use the *informativeness principle* to motivate their prediction that individual performance evaluation (IPE) has contractible information beyond what is in earnings and stock price. They argue that IPE will be included in a portfolio of measures that already includes earnings and stock price because IPE has information about aspects of managers' actions that are proprietary, harder to quantify, and less likely to be fully known by investors (see, also, Ittner et al. [1997]). Feltham and Xie [2004]

and Datar, Kulp, and Larcker [2001] consider more general settings in which managers must allocate their efforts across diverse tasks. Both studies make the point that, in such settings, multiple performance measures may be used to achieve better incentive mix, deal with the problem of goal congruence, and filter uncontrollable output risk in the performance measures.

Corollaries from the studies discussed above suggest several reasons OCF measure may be included in contracts despite earnings and stock-price measures. First, OCF is an accounting identity that equals the cash portion of income. More important, it captures the effort managers devote to working-capital and credit management which, in the sense of Sloan [1993], cannot be isolated from the stock price. In this respect, OCF measure may be demanded in contracts to stress working-capital and credit management (see, Baker and Wruck 1989) and/or reward executives for that aspect of their contribution. What is also important is that OCF is associated with valuable enterprise activities (e.g., new project funding, stock repurchases, R&D funding) whose effects on long-run market values are not only hard to partial out from the current stock price, but also less likely to be fully reflected on the stock price. As an example, a major R&D activity may be contingent upon OCF availability. To the extent information about the activity not public, current stock price will not fully capture the long-run effect. Yet, insiders will be acutely aware of the value of such activities and the role of OCF. When such activities are a key part of enterprise value, firms may contract on OCF to support/stress the activities.

Second, from an accounting standpoint, earnings and OCF both measure firm profitability. OCF, however, subsets from earnings in important ways: It measures only the operating *cash* income that is widely believed to contain less noise or *window-dressing* that often characterizes the accruals income. This latter point accommodates the premise that OCF may be used in contracts to untangle the effects of "window dressing" in earnings, as described in the multi-actions, multi-

outcomes LEN model analyzed by Lambert [2001]. As an example, EMCO in its 2009 proxy statement points out that OCF is used together with earnings in its incentive contracts to track earnings quality and adjust incentive pay for the component of earnings performance not corroborated by OCF performance. Furthermore, OCF performance captures specific aspects of managerial activity--working-capital and credit management--that are distinct from the activities that affect earnings. Under the standard agency framework, firms that value this aspect of managerial effort are likely to include OCF performance measure in their contracts.

The question is: In what contexts can the benefits of OCF be expected to reliably impact the likelihood that OCF measure will be included in contracts? Using insights from the studies discussed above, I predict that *business growth*, *external financing constraint*, and *low relative earnings quality* will affect the likelihood that OCF performance will be included in contracts. The premises for these predictions are discussed and formalized into testable hypotheses next.

2.1. GROWTH ARGUMENT

Several studies find that internally generated cash flow is an important strategy for growth financing (Vogt [1997], Shyam-Sunder and Myers [1999], Minton and Schrand [1999]).[1] The impact of OCF on growth spending follows from the frictions in the capital markets that create a wedge between the existence of growth opportunities and financing costs (Donaldson [1961], Myers and Majluf [1984]). The argument is that growth firms obtain strategic benefits from OCF via the financing flexibility OCF confers; such flexibility reduces investment-cash flow sensitivity driven by external financing costs (Fazzari, Hubbard, and Petersen[1988], Almeida, Campello, and Weisbach [2004], Gamba and Triantis [2008], Riddick and Whited [2009]).

[1] Consider, for example, an excerpt from IBM's 2004 Proxy Statement: "IBM's strong cash provided by operations of $14.6 billion and the Company's strong return on invested capital allowed the Company to invest $5 billion in Research and Development, which has not only continued to produce industry-leading products and technology but which has expanded IBM's research mission to pursue innovation in business transformation."

Despite the benefits of OCF to growth, the need to contract directly on OCF performance by growth firms will arise if the impact of OCF on growth and underlying managerial actions are difficult to infer from earnings and stock price. Ordinarily, OCF captures managers' effort devoted to working-capital and credit management; earnings and stock price are less informative about such effort or the benefits of OCF for growth. Earnings are the net result of diverse activities, but do not reflect the efforts devoted to working-capital and credit management. Also, the managers will be better informed than investors about how their efforts at OCF generation will impact growth. For instance, if new product development is contingent on OCF availability, investors may be unaware of the initiative or of the extent the initiative is sensitive to OCF. More important, even if the economic value of the initiative is fully impounded on the stock price, its separate effect of the initiative on value will be difficult to partial out from the stock price; even more difficult to ascertain from the price will be the level of managers' effort devoted to the underlying driver. The main point is that growth firms may contract on OCF metric (1) to exploit the benefits of working-capital and credit management to growth, (2) to deal with the difficulty in using earnings or stock price to determine the value of, or demand for OCF internally, and (3) to deal with the difficulty in using earnings and/or stock price to infer the efforts managers allocate to OCF generation.[2]

2.2. EXTERNAL FINANCING CONSTRAINT ARGUMENT

External financing constraint refers to the difficulty a firm faces in accessing external capital at reasonable costs. Such a constraint is another factor that can affect a firm's decision to contract on OCF performance. A priori, a financially constrained firm is expected to take actions to

[2] The use of stock price measures in incentive contracts rests on the argument stock prices reflect current and future implications of current managerial actions (Lambert and Larcker [1987], Smith and Watts [1992], Bushman and Indjejikian [1993], Gaver and Gaver [1993]); nonetheless, the stock price captures both firm-specific and market-wide signals in a manner that cannot distinguish the separate contributions of managers. As a result, performance measures that capture specific aspects of firm performance can be relevant in contracts (Sloan [1993]).

relax the financing constraint and/or mitigate the effects of the constraint on operations. While firms may vary in how they respond to financing difficulty, prior studies document that internal cash flow is a critical alternative source of finance for firms with costly access to outside capital (Fazzari, Hubbard, and Petersen [1988], Pinegar and Wilbrich [1989], Opler et al. [1999], Almeida, Campello, and Weisbach [2004], Faulkender and Wang [2006], Gamba and Triantis [2008], Riddick and Whited [2009]). For such firms, OCF can be valuable in funding routine operations, servicing existing debt, and negotiating better credit terms.

Similar to growth firms, but for different reasons, constrained firms may be apt to stress OCF performance in contracts. The firms require cash to support current operations, service existing debts, and/or adapt resources to different uses. However, access to external capital is costly and likely to restrict enterprise activities. In such contexts, OCF has strategic value in that it confers spending flexibility (that may be severely restricted with external finance) and acts as a bargaining tool the firms can use to negotiate or renegotiate credit terms; its contracting role thus arises from the fact that its benefits in mitigating external financing constraints and the efforts managers devote to its production will not be captured in current earnings, and are unlikely to be fully reflected on the stock price. Gilson and Vetsuypens [1993] also argue that compensation policy is an important strategy firms use in dealing with financing problems noting that distressed firms, for example, often tie incentive compensation to short-term results such as increases in OCF that are related to bring the firms out of distress and financing difficulty.

2.3. LOW RELATIVE EARNINGS QUALITY ARGUMENT

Another possible reason for the burgeoning OCF-based incentive plans is the renewed skepticism about the stewardship quality of earnings relative to that of OCF. In a press report, McCafferty [2004] notes that an increasing number of firms tie incentive rewards to cash flow

performance on the belief cash flow "is a better indicator of overall company performance and less easy to manipulate than earnings" (see, also, Dreyfus [1988], Fink [2003], Welch and Welch [2006]). Compensation observers link the recent trend in OCF-based incentive plan to increased vulnerability of earnings to accounting distortions (see, Skala [1991], Leone [2004]) and a desire by firms to tie incentive reward to verifiable performance (Edwards [1993], Ryser [1995]).

Insights from valuation studies suggest investors use OCF to interpret the quality of earnings as an indicator of core performance, more so for firms with volatile earnings (Wild, Bernstein, and Subramanyam [2001], DeFond and Hung [2003]), firms whose accounting process is perceived to be overly opaque or prone to considerable error (Wild et al. [2001], Pennman [2001]), and firms with long operating cycles. Such climates create doubt about the connection between earnings and core economic activity, enough for investors to insist on OCF performance as a means of validating what is earned. The contracting parallel is that OCF measure may be suitably used to interpret the marginal productivity of managerial effort in those contexts where earnings ability to indicate performance is limited or less than clear. An excerpt from the 2009 proxy statement by EMCON illustrates this point:

> The exact amount of each Executive's 2008 incentive award that we would pay based on our financial performance ranged from 0% to the maximum percentage of his annual base salary indicated in the immediately preceding paragraph, depending on our 2008 earnings per share and the ratio of our 2008 operating cash flow to our 2008 operating income. ... No annual incentive award based on these financial measurements was to be payable unless we achieved earnings per share for 2008 of at least $1.80 and 2008 operating cash flow of at least 40% of 2008 operating income. Consequently, the financial measurements emphasized earnings as well as operating cash flow—a measure of quality of earnings—and we linked it to guidance we provided to the equity markets.

Such anecdotes coupled with the standard agency theory predict that the incentive to include OCF performance in contracts will be strong when there is concern about earnings quality or when OCF performance can be used to filter output noise in earnings.

3. Empirical Method, Indicator Variables, and Data

3.1. EMPIRICAL MODEL

For the empirical tests, I model the choice of OCF performance measure in incentive plan (*OCF measure-in-plan*) as a logit function of growth (*GROW)*, financing constraint (*FCON*), and low relative earnings quality (*LREQ*). The univariate and multivariate models are written as:

$$\text{Prob}[\textit{OCF measure-in-plan} = 1] = \text{logit}\,(\xi_0 + \xi_i Z_i);\ \ Z_i \in \{\textit{GROW, FCON, LREQ)} \quad (1a)$$

$$\text{Prob}[\textit{OCF measure-in-plan} = 1] = \text{logit}\,(\xi_0 + \xi_1 \textit{GROW} + \xi_2 \textit{FCON} + \xi_3 \textit{LREQ}) \quad (1b)$$

In (1a), ξ, evaluates the univariate effect of i^{th} factor, Z_i, on the likelihood of contracting on OCF performance; (1b) permits an evaluation of the influence of each factor on the likelihood function, controlling for the effects of other factors. For example, ξ_1 evaluates the effect of *GROW* on the likelihood of contracting with OCF performance, controlling for the effects of *FCON* and *LREQ*; analogously, ξ_2 and ξ_3 evaluate the effects of *FCON* and *LREQ*, respectively, on the likelihood a firm will contract on OCF performance, controlling for the effects of the other factors.

3.2. INDICATORS VARIABLES

I use several firm-level variables that capture growth, financing constraint, and low relative earnings quality. To reduce biases due to variable scale or extreme values, I stylize the firm variables into 1/0 indicators of the presence/absence of the related factors. The regime allows me to create an ordering of the factors (e.g., high/low growth) that identifies sub-sets of firms for which OCF-in-plan is predicted to be most likely. The indicators are discussed next.

3.2.1. Business Growth

I derive growth indicators from sales growth ($\Delta S\textit{ales}_t/\textit{Sales}_{t-1}$), investment growth ($\Delta\textit{Capital expenditures}_t/\textit{Capital expenditures}_{t-1}$), and working-capital growth ($\Delta\textit{Working}$

capital/property, plant, & equipment). These measures are widely linked to rising product demand and existence of growth opportunities (Trueman [1986], Ambarish, John, and Williams [1987], John and Mishra [1990], Bernard and Stober [1989], Dechow, Kothari, and Watts [1998]). The indicators, denoted *SGR* for high sales growth, *IGR* for high investment growth, and *WGR* for high working-capital growth, are each set to 1 if the corresponding firm-year growth measure is higher than the median measure that year for firms in the same two-digit SIC code, and 0 otherwise. I also include indicators derived from other conventional measures of growth--the ratios of enterprise value to total assets (enterprise value = market equity + total assets – book equity), enterprise value to operating income, enterprise value to enterprise OCF, and research and development costs to revenues (see, Basu [1977, 1983], Rosenberg, Reid, and Lanstein [1985], Lakonishok, Shleifer, and Vishny [1994]). I also include *debt issue* as a growth measure in view of its signaling quality.[3] Indicators based on these latter growth measures are high enterprise to book value (EVTA), high enterprise to operating income (EVOI), high enterprise to cash flow (EVECF), high R&D (R&D), and debt issue (XFD). Each indicator is set to 1 if the associated firm-year variable is higher than the median for firms in the same industry that year, and 0 otherwise. XFD is 1 if debt is issued for the firm-year; else, it is 0. The indicators fully described in Panel A of Table 1.

3.2.2. Financing Constraint

Factors widely predicted to affect a firm's access to external capital include firm size, financial distress, and liquidity problems. Firm size is known to be inversely related to financing costs; small firms, for instance, face strong access barriers because they are less known and

[3] The standard theory on debt issue posits that new debt raises the marginal financing costs due to increased risk of default/distress, and the agency costs created by the limited liability feature of debt contracts (Jaffee and Russell [1976], Calomiris and Hubbard [1990]). However, firms are aware of such costs, and can be expected to issue new debt only when the expected payoffs from projects to which the funds will be applied exceed the associated costs. Myers and Majluf [1984] note that by issuing debt with non-contingent repayment and bankruptcy provisions, a firm signals to investors it is good quality since it is willing to assume the consequences of its investment decisions.

vulnerable to capital market imperfections. Besides the costs to such firms arising from their severe information problems, transaction costs also limit their ability to access external capital (Fazzari et al. [1988]). Financial distress is another barrier to capital-market access; distressed firms face higher capital costs due to premiums for increased risk of failure. Internal liquidity problem arises when a firm is recurrently unable to meet its financial obligations from internal sources; such a condition poses barriers to capital-market access due to lenders' concern the firm will default on new debt.[4] I also include debt and commercial paper ratings as proxies for ease of access to capital markets. In the US, debt and commercial paper ratings are provided as gauges of firms' credit worthiness and, thus, of the ease with which the firms can access external capital: Firms whose debt quality is rated high (low) face low-cost (costly) access to the capital markets (Whited [1992], Kashyap et al. [1994], Gilchrist and Himmelberg [1995], Almeida et al. [2004]).

The size indicator, SIZE, is 1 if a firm-year total assets are less than the median total assets for firms in the same two-digit SIC code for the year, and 0 otherwise. For distress, I use two indicators--repeated losses (LOSS) and Altman's Z-score (ZSC): LOSS is 1 for a firm-year if the operating income is negative over two prior years, and 0 otherwise; ZSC for a firm-year is 1 if the Altman's Z-score is less than 1.81, and 0 otherwise. For internal liquidity problem, I use dividend omission and negative free cash flow: The indicator, DIV_MSS, is 1 if the firm missed/cut dividends in prior or in current year, and 0 otherwise. The indicator for negative free cash flow, NFCF, is 1 if FCF in prior year is negative, and 0 otherwise.[5] I also include earnings retention rate as an indicator of financing constraint (see, e.g., Fazzari et al. [1988]): The indicator, RETN, is set

[4] Fazzari et al. [1988] provide extended survey of costs associated with internal illiquidity.

[5] Dividend omission is noted to be common among firms with liquidity/contractual problems for which additional borrowing is likely to be costly (Kalay [1979], Bowen, Noreen, and Lacey [1981], Holthausen [1981], Healy and Palepu [1990], DeAngelo and DeAngelo [1990]). Negative free cash flow signals internal cash problems, and has been linked to higher costs of capital (Dechow, Sloan, and Sweeny [1996]).

to 1 if the firm-year retention rate is greater than the median rate for firms in the same two-digit SIC code for the year, and 0 otherwise.[6] The indicator of constraint implied by debt rating, *B_rtg*, is 1 if the firm has long-term debt at the beginning of the year that is unrated or rated speculative or lower by S&P, and 0 otherwise; the constraint implied by commercial paper rating, *C_rtg*, is 1 if the firm's commercial paper rating by S&P at the beginning of the year is speculative or in default, and 0 otherwise. The indicators are fully described in Panel B of Table 1.

3.2.3. Low Relative Earnings Quality

Following prior research on the properties of earnings that affect its stewardship value (e.g., Natarajan [1996], Dechow and Dichev [2002], Schipper and Vincent [2003]), I derive indicators of relative earnings quality from the ratio of the standard deviation of earnings to that of OCF, ratio of 3-year cumulative changes in earnings to 3-year cumulative changes in OCF, ratio of 3-year cumulative earnings to 3-year cumulative OCF, absolute discretionary accruals (DAC) based on the modified Jones' model, absolute total accruals (TAC), length of operating cycle, and special items. The first three measures capture the extent temporal patterns of earnings diverge from that of OCF and a possible incentive for firms to use OCF performance to interpret the information in earnings. DAC and TAC proxy for the extent managers are suspected of managing earnings and, thus, for the likelihood OCF performance will be used to filter the noise in earnings. Long cycles indicate more uncertainty and greater scope for subjectivity in accruals measurement. Special items have been shown to reduce the ability of earnings to indicate performance (McVay [2006], Dechow and Ge [2006], Cain, Kolev, McVay [2009]) and the

[6] Initially, financing constraint measures included leverage, times interest earned, cash flow-to-fixed charges, and cash flow volatility that have appeared variously in prior research (e.g., Fazzari et al., [1988], Myers [1977], Myers and Majluf [1984]). To keep the number of variables manageable, I apply principal factor analysis and drop these latter variables because they load weakly on the latent factor most consistent financing constraint.

sensitivity of compensation to earnings (Dechow, Huson, and Sloan [1994], Gaver and Gaver [1998]. OCF may be contractible in such contexts to the extent it can filter the output risk in earnings and/or capture the desirable aspects of managers' actions that generate special items.

The indicators are denoted variously as *sdv-REQ* for high earnings-OCF standard deviation ratio, *chg-REQ* for high earnings-OCF change ratio, *avg-REQ* for high earnings-OCF level ratio, *DAQ* for high absolute DAC, *TAQ* for high absolute TAC, *CYCLE* for long operating cycle, and *SPI* for large special items. Each indicator is set to 1 for a firm-year if the corresponding measure is higher than the median measure for firms in the same two-digit SIC code for the year, and 0 otherwise. The indicators are fully described in Panel C of Table 1.[7]

3.3. SAMPLE SELECTION

Using the Lexis-Nexis, I search all proxy statements filed with the SEC from 1992 to 2006 for incentive plans that contain references to OCF performance. Initially, I focused on proxy statements in which the term *cash flow(s), operating cash, cash from operation, cash from continuing operation*, or *economic value added* is textually in close proximity of any of the following identifiers, *bonus, incentive, plan, short-term incentive* or *STIP, award, long-term incentive* or *LTIP, reward plan, performance plan, performance unit, performance award, earned plan units, performance payment, earned unit*. 7,948 proxies were initially returned. Next, I read the proxy statements manually to select firm-year plans that contain explicit or implicit provisions that tie a portion or all incentive rewards to OCF-based metric; the metric may be OCF level, OCF rate of return, or other variants of OCF measure. The sample is further screened to include firm-years for which indicators of growth, financing constraint, and low relative earnings quality can be

[7] To mitigate sample attrition, measures of earnings quality are restricted to simple indicators that do not require complex estimation procedures or long-time series of observations,

computed. The final sample comprises 362 firms with 2,116 firm-year observations. Table 2 shows the industry composition of the firms. Notably, plan use is spread across the industries, but more frequent in SICs 37 (communications), 13 (oil & gas), 73 (business services), 49 (electric, gas, & sanitary services), and 28 (chemical & allied products).

[Table 2 about here]

For analysis, each plan user is matched with a control firm selected randomly; no other criteria are imposed for matching apart from requiring that the control firm is in the same two-digit SIC code, has relevant test data during the years OCF-incentive plan is in place for the plan user, and has no record of contracting on OCF performance during the test period. (Other potential match variables are hypothesized to affect the choice of OCF measure). To mitigate bias that may arise from firms with multiple observations, I use firm-level averages of the independent variables (i.e., for each firm, each test variable is averaged across the number of observations).

4. Empirical Results

4.1. PRELIMINARY EVIDENCE

In Table 3, I compare indicators of growth, financing constraints, and poor earnings-to-OCF quality between plan users and control firms. Across all growth measures in Panel A, the proportion of plan users in high growth class is significantly higher than the proportion of nonusers in the same class (Z-value is highly significant in each case). For example, sales growth for about 45% of plan users exceeds the industry median sales growth, whereas only 24.25% of control firms have sales growth higher than the industry median sales growth. The results are similar for indicators of capacity expansion and all three *q*-style growth measures. Notice also that about 83% of plan users issue debt compared to only about 33.33% of control firms.

[Table 3 about here]

Results in Panel B clearly indicate that more firms in the control group are financially constrained compared to plan users.[8] For example, about 85% of the control firms have negative free cash flow, whereas free cash flow is negative for only 50% of plan users. Other indicators of financing constraints are similarly more prevalent among non-user firms. These results suggest plan users exhibit features that are less consistent with severe external financing constraint.

In Panel C, the proportion of plan users with low relative earnings quality is significantly higher than the proportion of non users with low relative earnings quality. For example, the ratio of the standard deviation of earnings to that of OCF exceeds the industry median ratio for about 40% plan users, but for only 27% nonusers. The ratio of cumulative earnings change to cumulative OCF change is likewise higher than the industry median ratio for a greater percentage of plan users; other indices of low relative earnings quality--poor accrual quality, high earnings to OCF ratio, long operating cycle, and large special items--are also more prevalent among plan users. In effect, the mapping between earnings and OCF is weaker for a higher proportion of plan users.

4.2. MAIN RESULTS

Main tests of the economic factors/incentives associated with the choice of OCF performance in incentive compensation contracts are based on aggregate indexes of growth, financing constraint, and low-relative earnings quality constructed from their respective primary indicators. The indexes and corresponding results are described below.

4.2.1. Equally-Weighted Indexes of Business Conditions and OCF-Incentive Plans

For the equally-weighted index, a firm-year index of a business condition is the sum of the firm-year binary indicators of the condition. Thus, a firm-year index of growth, *idx_GRO*, equals

[8] The proportions of firms deemed financially constrained are relatively high due to how the indicators are derived. For example, dividend is set to 0 if it is missing from the Compustat, and is not reported in major news wires. The zero value, in turn, causes DIV_MSS for the firm-year to take a positive value.

(*SGR* + *IGR* + *WGR* + *EVTA* + *EVOI* + *EVECF* + *RD* + *XFD*); the maximum (minimum) value *idx_GRO* can take for a firm-year is thus 8 (0). High (low) *idx_GRO* identifies a firm whose activities *cum* profitability indicate strong (weak) growth across several dimensions. Firm-year indexes of external financing constraint, *idx_CON*, and low relative earnings quality, *idx_REQ*, are analogously estimated and have maximum (minimum) possible values of 8 (0) and 7 (0), respectively. The summation approach has the advantage of incorporating multiple dimensions of firm characteristics that reflect the underlying business conditions.

Table 4 presents the results of comparing the mean and median indexes between plan users and non-users. The mean and median *idx_GRO* and mean and median *idx_REQ* are significantly higher for OCF-incentive firm-years than for firm-years without OCF-incentive plans; by contrast, the mean and median *idx_CON* are significantly lower for the OCF-incentive firm-years. The results again show that plan users are characterized by high business growth and low relative earnings quality, but are less financially constrained.

[Table 4 about here]

To test the effects of the indexes on the likelihood a firm has OCF in its incentive plan (*OCF-in-plan*), I estimate the following univariate and multivariate logit models:

$$\text{Prob}[\textit{OCF measure-in-plan} = 1] = \text{logit}\,(\xi_0 + \xi_i Z_i);\ \ Z_i \in \{\textit{idx\_GRO}, \textit{idx\_CON}, \textit{idx\_REQ}\} \qquad (1a)$$

$$\text{Prob}[\textit{OCF measure-in-plan} = 1] = \text{logit}\,(\xi_0 + \xi_1 \textit{idx\_GRO} + \xi_2 \textit{idx\_CON} + \xi_3 \textit{idx\_REQ}) \qquad (1b)$$

In (1a), ξ_i, reflects the effect of Z_i on the likelihood of contracting on OCF performance; (1b) permits an evaluation of the influence of each index on the likelihood of contracting on OCF performance, controlling for the effects of other two indexes. The results are in Table 5.

[Table 5 about here]

The univariate results in Panel A show that the effects *idx_GRO* and *idx_REQ* on the likelihood of contracting on OCF performance are reliably positive; the coefficient (standard error) is 0.438 (0.01) for *idx_GRO*, and 0.451 (0.01) for *idx_REQ*. The rates with which the indexes successfully identify plan users (%Concordance) are 74.4% and 76.6%, respectively. By contrast, *idx_CON* has a negative impact on the likelihood function (coefficient = 0.589, standard error = 0.01); with approximately 77% concordance, this latter result suggests that financing constraint identify firms strongly less likely to include OCF performance measure in incentive plans.

The multivariate results in Panel B mirror the univariate results: *idx_GRO* and *idx_REQ* load positively on the likelihood a firm will contract on OCF (their coefficients are highly significant at 0.0001 probability); by contrast, *idx_CON* loads negatively on the likelihood of plan adoption (its coefficient is also highly significant at 0.0001 probability). The success rate with which the indexes jointly identify plan users jumps to 86%. All together, the indexes possess significant information about the likelihood a firm will include OCF measure in its incentive plans, although the results for *idx_CON* fail to support the notion that financing constraint has a positive effect on firms' choice to contract on OCF measure; instead, the results imply that financing constraint has a negative effect on the likelihood of contracting on OCF performance.

4.2.2. Common-Factor Models of Business Conditions and OCF-Incentive Plans

The summation method for indexing each economic factor ignores possible variation in the strength of each indicator as a measure of the scope or scale of the underlying business factor. For example, dividend cut may sort financially constrained firms more or less effectively than repeated losses; sales growth and high R&D may both signal growth opportunities, but correlate with overall growth unequally; also, abnormal accruals and standard deviation of earnings may correlate with earnings quality unequally. To allow for differences in the informativeness of the indicators, I

use the common factor approach.[9] The method generates factor scores for growth (*fac_GRO*), financing constraint (*fac_CON*), and low relative earnings quality (*fac_REQ*) for each firm-year as a weighted linear combination of the indicator variables, where the weight of each indicator is a proxy for the extent the latent factor is reflected on the indicator. Descriptive statistics for the indices and other relevant parameters of the model are shown in Table 6.

[Table 6 about here]

In Panel A, ℓ is positive for all indicators of growth; the ratio of enterprise value to operating income has the highest ℓ of 0.699, indicating the indicator has the highest correlation with the growth factor indexed by *fac_GRO*; ℓ for other indicators of growth are also appreciably high, ranging from 0.518 for the ratio of research and development costs to net property, plant and equipment to 0.695 for capital expenditure growth. In Panel B, all indicators of external financing constraint also load positively and highly on *fac_CON*; the factor load, ℓ, ranges from 0.474 for Altman Z-score to 0.813 for repeated losses. In Panel C, all indicators of low relative earnings quality also load positively and highly on relative earnings quality factor, *fac_REQ*, ranging from 0.568 for high earnings-OCF ratio to 0.70 for high earnings change-OCF change ratio.

In Table 7, I compare the mean and median *fac_CON*, *fac_GRO*, and *fac_REQ* between plan users and non-user firms. The two samples differ markedly in these respects, with non-user firms having higher mean and median *fac_CON*, but lower mean and median *fac_GRO* and *fac_REQ*. These results parallel those in Table 6 and suggest that plan users differ from their control counterparts with respect to growth, financing constraint, and earnings quality, with the former firms possessing characteristics consistent with high growth, low relative earnings quality, and easier access to external financing.

[9] Based on strong priors about the link between each economic factor and its indicators, I perform the analysis separately for business condition, restricting the number of principal factors to one.

[Table 7 about here]

Next, I assess the effects of *fac_GRO*, *fac_CON*, and *fac_REQ* on the likelihood a firm will include OCF in its plan. I expect these revised indexes of the business states to improve construct validity and enhance the efficiency of tests in that, unlike the indexes based on the simple aggregation regime, their respective models weight the contribution of each indicator variable in terms of the latter's correlation with the latent factor. The models are:

$$\text{Prob}[\textit{OCF-in-plan} = 1] = \text{logit}\ (\xi_0 + \xi_i Z_i);\ \ Z_i \in \{\textit{fac\_GRO}, \textit{fac\_CON}, \textit{fac\_REQ}\} \quad (2a)$$

$$\text{Prob}[\textit{OCF-in-plan} = 1] = \text{logit}\ (\xi_0 + \xi_1 \textit{fac\_GRO} + \xi_2 \textit{fac\_CON} + \xi_3 \textit{fac\_REQ}) \quad (2b)$$

ξ_i in (2a) assesses the effect Z_i on the logit function; ξ_1, ξ_2 and ξ_3 in (2b) assess the impact of *fac_GRO*, *fac_CON*, *fac_REQ*, respectively, on the logit function, holding constant the effects of the other indexes. Table 8 presents the results.

[Table 8 about here]

The univariate results in Panel A show that *fac_GRO* and *fac_REQ* have positive and significant effects on the likelihood a firm will contract on OCF; the coefficient (standard error) is 0.924 (0.02) for *fac_GRO* and 0.796 (0.02) for *fac_REQ*. The odd ratio is greater than 2 in each, and the rates with which they successfully identify firms that contract on OCF performance are, respectively, 77.6% and 74.3%. By contrast, the effect of f*ac_CON* on the likelihood function remains negative (coefficient = –0.964, standard error = 0.02) and, again, shows that financially constrained firms are unlikely to include OCF measure in incentive plans. The multivariate results in Panel B mirror those based on the univariate models: *fac_GRO* and *fac_LEQ* are both highly associated with the likelihood of contracting on OCF performance; whereas, the effect of *fac_CON* on the likelihood function remains reliably negative. Notice, however, that adding the three factors in the model increases the overall percentage concordance to about 86%.

4.3. GOVERNANCE STRUCTURES AND OCF IN INCENTIVE PLANS

Incentive contracts that assign explicit weights on OCF performance are a recent innovation. Whether and the extent corporate governance influences such innovation is unclear. The literature suggests that, in designing particular contracts, firms substitute away from performance measures that are inherently ineffectual in capturing managers' effort level.[10] There is, however, limited evidence on how the various structures of governance affect the choice of specific performance measures. In this section, I assess whether and in what direction particular governance structures affect the likelihood of using OCF in contracts, holding constant the effects of growth, financing constraint, and earnings quality.

To assess the effect of governance structures on the likelihood of OCF-in-plan, I augment the logit models with several governance variables shown to affect optimal contracts, including fraction of independent board members (*Board_independence*), fraction of shares held by the CEO (*CEO_equity*), fraction of shares held by institutions (*Institution_share*), 1/0 indicator of classified/non-classified board (*Board_classified*), 1/0 indicator of CEO who is chairman/not-chairman of the board (*CEO_duality*) and interactions of board size with business scope. The last proxy needs clarification. Large board size is previously thought to create coordination problems and reduce the quality of board decisions (Jensen [1993], Yermack [1996], Eisenberg, Sundgren, and Wells [1998]). Recent studies, however, show that the effect of board size on governance is driven primarily by business scope (Raheja [2005], Coles, Daniel, and Naveen [2008]); in large and complex firms, larger boards give better advice via their richer pools of talents. Under this

[10] A related view often expressed in the literature is that well-governed firms substitute away from incentive plans with excessive focus on earnings, on the premise earnings are highly vulnerable to distortion and, increasingly, less informative about managers' stewardship (Dechow, et al.[1996], Beasley [1996], Klein [2002], Cornett, Marcus, Tehranian [2008]). Such a view is further advanced by the preponderance of evidence that managers manipulate earnings when such action is expected to bolster their incentive pay (Guidry, Leone, and Rock [1999], Cheng and Warfield [2005], Coles, Hertzel, and Kalpathy [2006], Bergstresser and Philippon]2006]).

view, the relevant variable for analysis is the interaction of board size with business scope. Following Coles et al. (2008), I define three size-scope proxies: *Boardsize_sales* = Log(number of directors)×Log(sales), *Boardsize_leverage* = Log(number of directors)×leverage, and *Boardsize_nsegements* = Log(number of directors) × Log(number of business segments).[11] The results of the expanded logit models are in Table 9.

[Table 9 about here]

The variables that proxy for more effective governance structure have positive effect on the likelihood function. In particular, *Board_independence*, *CEO_equity*, *Institution_shar*e, *Boardsize-scope* load positively on the likelihood function. On the other hand, *Classified_board* and *CEO_duality* reduce the likelihood of OCF-in-plan. Notice further that the effects of growth, external financing constraint, and low relative earnings quality remain significant as reported in the previous sections. Overall, these findings suggest a greater predisposition to contract on OCF among firms with strong governance mechanisms and a reluctance to contract on OCF among firms with classified boards or firms in which CEO is also the chairman of the board. The results also indicate that governance structures are not a substitute for the effects of growth, external financing constraint, and low relative earnings quality on the likelihood ratio.

4.4. OCF IN SHORT- VERSUS LONG-TERM INCENTIVE PLANS: DETERMINANTS

The structure of OCF-based plans differs among adopters in ways that portend cross-sectional variation in the underlying motivation for plan adoption. In particular, OCF-incentive plans can be categorized either as a short-term plan (OCF-STIP) or long-term plan (OCF-LTIP). OCF-STIP plans largely provide cash rewards to qualified executives for annual OCF performance

[11] The governance variables are obtained from the Corporate Library. Several governance variables (e.g., composition of the compensation committee) are omitted from analysis because they are mandated under the Sarbanes-Oxley Act of 2002 and are invariant across firms.

that meets/exceeds specified target or criteria. Performance target or criteria may be in terms of target OCF level, range of OCF performance, or relative OCF measure determined according to preset formula. (In some cases, targets are defined loosely to give the compensation committee discretion to modify the bonus criteria as necessary). On the other hand, OCF-LTIP largely comprises performance awards, restricted stocks, stock options, share units, etc., tied to multiple-period OCF performance. In most instances, award eligibility is determined by comparing OCF performance over several periods to a benchmark. Awards typically vest after several periods.

Arguably, a firm will stress OCF performance in the near term to solve immediate cash problems or exploit opportunities that would be lost if funds were not available internally. Nwaeze, Yang, and Yin [2006] argue that demand for OCF performance in annual incentive plans is likely to be strong among growing firms that often require internal funds to bridge shortfalls in external funds or to lower the costs of, or dependence on external finance. Firms with earnings quality problems may also favor OCF-STIP not only to curb incentives for earnings distortion, but also to stress managerial actions that generate OCF. Gilson and Vetsuypens [1993] argue that firms in distress (and, thus, financially constrained) will also tie CEO bonus to short-term factors, such as OCF performance, that are related to bringing the firm out of distress (see, also, Gilson [1989], Ittner et al. [1997]). However, financially constrained firms have an incentive to conserve cash and may substitute away from OCF-STIP to reduce the proportion of cash-based compensation.

Demand for OCF in long-term plans is premised on its perceived link to shareholder value (notably as the least-cost source of capital that can be deployed flexibly) and its ability to indicate managers' value-creating effort that may be missing in earnings in the short-run or hard to judge from the stock price. Both features are particularly attractive to growing firms that often tout OCF availability as an important strategy for sustaining growth activities and for maintaining flexibility

in capital spending (see, e.g., *Cooper Tire & Rubber* 2003 Proxy Statement). Growth firms may thus favor OCF-LTIP besides OCF-STIP. Financially constrained firms may also favor OCF-LTIP as a solution to their external financing constraint, and more importantly, as a strategy to conserve cash via compensation elements that are largely non-cash. Firms with chronic earnings quality problems may also favor OCF-LTIP to reduce excessive focus on short-term results, in general, and reward performance that is directly linked to shareholder value (Mulford [2004]).

To assess the determinants of plan type, I estimate a multinomial logit using four OCF-in-plan types: Plan directed exclusively at short-term OCF results (*STIP-only*); plan directed exclusively at multi-period OCF performance (*LTIP-only*); plan with concurrent weights on short-term and multi-period OCF performance (*STIP-LTIP-mix*); loosely defined OCF-in-plan (*Uncommitted*). Plan type is set to *STIP-only* if the explicit or implied weight on OCF performance in the determination of incentive award for any participating executive is 5% or higher; the award is based on annual OCF result; there are no other plans that tie incentive rewards to long-term OCF performance. Plan type is set to *LTIP-only* if the explicit or implied weight of OCF performance in the calculation of long-term incentive award for any participating executive is 5% or higher; the award is based on long-term OCF performance; there are no bonus/short-term awards tied to annual OCF result. Plan type is *STIP-LTIP-mix* if it satisfies conditions for *STIP-only* and for *LTIP-only* except that both plans are in effect concurrently. Plan type is set to *uncommitted* if OCF-incentive compensation is indicated, but the explicit or implied weight of OCF is less than 5%. The choice of 5% weight cutoff is arbitrary, but intended to include firm-years for which a reasonable portion of incentive reward is tied to OCF performance.[12]

[12] In many cases, the annual plan stipulates different OCF weights for different executives within the organization, perhaps to respond to differences in cash generating potentials or managerial responsibilities across units. For

Next, I assess the effect of each business condition on the likelihood of choosing a given plan type. The results are shown in Table 10.

[Table 10 about here]

Panel A presents results based on indexes of the three business conditions derived from simple summations of indicator variables; those in Panel B are based on factor scores of the business conditions. Results in both panels suggest that growth firms are more likely to use OCF-STIP and OCF-LTIP concurrently, but less likely to use each type in isolation. This result supports the conjecture that growth firms will include OCF performance in their short-term and long-term incentive plans to not only reduce dependence on more costly external financing but also to deal with the limited ability of earnings to indicate value-creating efforts of managers in growth contexts. Low relative earnings quality is significantly associated with *LTIP-only* but only marginal associated with *STIP-only*. This result appeals to the view that firms with chronic relative earnings quality problems will substitute toward OCF-LTIP in an attempt to curtail short-term focus and reward managers on the basis of a more credible indicator of long-term performance. The coefficient on external financing constraint is reliably negative for either *STIP-only* or *LTIP-only* or *STIP-LTIP-mix*. Again, the results do not support the view that financing constraint raises the likelihood that a firm will contract on OCF; rather, the results point to an opposite effect.

4.5. EXTENDED REVIEW: FINANCING CONSTRAINT AND OCF-INCENTIVE PLAN

One conjecture for the negative effect of financing constraint on the likelihood of using OCF performance in contracts is a possibility the proxy variables for financing constraint are bad indicators of the extent firms are financially constrained and are, thus, spuriously negatively

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expediency, I determine plan type in such instances based on the highest weight provision. Also, as an alternative, I use 10% cut-off point; the results yield the same conclusions and are omitted for brevity.

related to the likelihood function. To explore this possibility, I follow the approach by Kaplan and Zingales [1997] and review the *Management Discussion & Analysis* (MD&A) section of Form 10-K for publicly listed firms from 2004 to 2006 to develop a sample of firms facing acute financing problems and difficulty obtaining external funds at reasonable costs.[13] Examples of firms in this category are firms that default on their financial obligations (default on lease payments, interest payments, preferred dividends, debt repayments, etc.) and those in default but in active debt renegotiation. Because of the huge effort and cost of the manual data collection, I collect only 528 firms that meet the criterion; the firms in the sample, however, span all industries. On reviewing their MD&A, I observe certain common features among the firms, including string of prior losses, negative working capital, dividend omission, high debt, poor or unrated debt quality. In all instances, the firms admit to facing severe constraints with respect to operations and financing.

Next, I examine the proxy statements for this sub-set of firms for evidence or absence of OCF performance measure in their incentive plans. A high frequency of OCF-in-plan among the firms will suggest bias in instrumentation of the indictors of financing constraint. Surprisingly, out of the 528 firms, only six firms have OCF measures in their incentive plans during the period. Of the six firms, only two attach appreciable weight on OCF performance in their plans; the remaining four firms provide only a perfunctory discussion of OCF in their incentive plans.

Given the firms' (self-described) severe constraints to business activity imposed by financing problems, it seems surprising that such firms do not stress internal cash via OCF-based

[13] The SEC Regulation S-K, Item 303, requires registrants to provide extensive discussion and disclosure about their capital resources and liquidity requirements and to disclose any material deficiency and the course of action the registrant has taken or proposes to take to remedy the deficiency. Registrants are also to identify and separately describe their internal and external sources of liquidity; and to describe material commitments for capital expenditures as of the end of the latest fiscal period, and indicate the general purpose of such commitments and the anticipated source of funds needed to fulfill such commitments.

incentive contracts. To better understand the firms' approach to resolving their financing problems, I review the management plans for dealing with the financing problems. Surprisingly, the most common strategy the firms outline for dealing with the financing problems is a restructuring of existing debt with an intense effort to obtain further external funds, albeit, at prohibitive costs and with severe restrictions on enterprise activities. New financing activity often entails issuance of subordinate and convertible debt, revolving credits, private debt issue, etc. A few firms resort to equity issue (at deep discount), asset sales, or extensive restructuring actions that alter the scope and scale of business activity. It is not clear why such firms seem averse to OCF-incentive contracting, seeing the benefits of OCF versus the costs of additional external finance.

5. Concluding Remarks

This study is an initial attempt at providing positive evidence on the use of, and economic incentives for OCF in incentive plans. The analysis yields interesting insights: In particular, I find that growth firms and those with low relative earnings quality are strongly likely to contract on OCF. By contrast, firms that face severe external financing constraint seem averse to contracting with OCF, but apt to issue more debt or debt-like instruments, despite the prohibitive costs lenders impose for supplying further capital. Further analysis shows growth firms are likely to concurrently adopt bonus and long-term incentive plans that include OCF measures; firms with low relative earnings quality show a strong inclination toward using OCF in long-term plans and only a slight tendency toward using OCF in bonus plans. Financially constrained firms exhibit strong disinclination toward using OCF either in bonus or in long-term plans. Despite these insights, the study leaves some unanswered questions: Why financially constrained firms are disinclined to contract on OCF despite the obvious advantages to doing so.

Table 1

Variables definition

Growth indicators

SGR = 1 if firm-year sales growth is higher than the median sales growth for firms in the same two-digit SIC code that year, and 0 otherwise: Sales growth = $\Delta Sales_t/Sales_{t-1}$

IGR, equals 1 if firm-year capital expenditure growth is higher than the median growth for firms in the same two-digit SIC code for the year, and 0 otherwise: CAPX growth = ΔCapital expenditures$_t$/Capital expenditures$_{t-1}$

WGR, equals 1 if firm-year growth in working capital is higher than the median growth in working capital for firms in the same two-digit SIC code for the year, and 0 otherwise: WC growth = ΔWorking capital$_t$/Working capital$_{t-1}$

EVTA = 1 if firm-year ratio of enterprise value to total assets is higher than the median ratio for firms in the same two-digit SIC code for the year, and 0 otherwise: MVA/BVA = (Market equity + Total assets – Book equity)/Book assets

EVOI = 1 if firm-year ratio of enterprise value to operating income is higher than the median ratio for firms in the same two-digit SIC code for the year, and 0 otherwise: MVA/OI = (Market equity + Total asset – Book equity)/Operating income

EVECF = 1 if firm-year ratio of enterprise value to enterprise cash flow is higher than the median ratio for firms in the same two-digit SIC code for the year, and 0 otherwise: MVA/EOCF = (Market equity + Total assets – Book equity)/OCF before interests & taxes

R&D = 1 if firm-year ratio of research & development costs to net property, plant, & equipment is higher than the median ratio for firms in the same two-digit SIC code for the year, and 0 otherwise.

XFD = 1 for a firm-year if the firm issued debt in the current or prior year, and 0 otherwise.

External financing constraint indicators

NFCF = 1 if free cash flow for the previous year is negative for a firm-year, and 0 otherwise: Free Cash Flow = OCF – Capital expenditures – preferred dividend.

DIV_MSS =1 if the firm missed/cut dividends in the previous or current year, and 0 otherwise.

LOSS = 1 if operating income for a firm-year is negative over two prior years, and 0 otherwise

ZSC = 1 if the Altman's *Z*-score of financial health is less than 1.81, and 0 otherwise.

B_rtg = 1 if a firm has long-term debt at the beginning of the year, which is either unrated or rated speculative or lower by S&P, and 0 otherwise.

C_rtg = 1 if a firm's commercial paper rating by S&P at the beginning of the year is speculative or in default, and 0 otherwise: Commercial paper rating by S&P

RETN = 1 if a firm-year retention rate, defined as the ratio of operating income to the sum of dividends and stock buyback, is greater than the median retention rate for firms in the same two-digit SIC code for the year, and 0 otherwise: Earnings retention rate = Income /(Dividend + stock repurchases)

SIZE = 1 if a firm-year total assets is less than the median total assets for firms in the same two-digit SIC code for the year, and 0 otherwise.

Table 1 (continued)

Relative earnings quality indicators

sdv-REQ equals 1 if the firm-year ratio of the standard deviation of earnings to standard deviation of OCF is higher than the median ratio for firms in the same two-digit SIC code for the year, and 0 otherwise:

chg-REQ equals 1 if the firm-year ratio of 3-year cumulative changes in earnings to 3-year cumulative changes in OCF is higher than the median ratio for firms in the same two-digit SIC code for the year, and 0 otherwise.

avg-REQ equals 1 if the firm-year ratio of 3-year cumulative earnings to 3-year cumulative operating cash flows for the firm-year is higher than the median ratio for firms in the same two-digit SIC code for the year, and 0 otherwise.

DAQ equals 1 if the absolute value of firm-year accrual residual from the modified Jone's model is larger than the median absolute residual for firms in the same two-digit SIC code for the year, and 0 otherwise

TAQ equals 1 if the firm-year absolute total accruals are less than the median absolute total accrual for firms in the same two-digit SIC code for the year, and 0 otherwise

CYCLE equals 1 if the length of operating cycle for the firm-year is longer than the median cycle for firms in the same two-digit SIC code for the year, and 0 otherwise: Operating cycle = $[365\div(\#13\div(\#2_t+\#2_{t-1})) +365\div(\#41\div(\#3_t+\#3_{t-1}))]$.

SPI equals 1 if the ratio of the sum of the absolute value special items for two previous years to book value of equity is higher than the median ratio for firms in the same two-digit SIC code for the year, and 0 otherwise: Special items is shown as item #17 in the Compustat: SPI = ($|\text{Special items}_t| + |\text{special items}_{t-1}|$)÷Book value of equity $[(\#17_t + \#17_{t-1})\div \#60]$.

Table 2

Distribution of firms that have OCF-based incentive plans across two-digit SIC codes from 1992 to 2004 (for firms that are in the Compustat for which data are available for analysis).

SIC	#Firms	Percent of sample
10	4	1.10%
12	1	0.28%
13	34	9.39%
15	6	1.66%
16	2	0.55%
17	1	0.28%
20	11	3.04%
21	1	0.28%
22	3	0.83%
23	1	0.28%
24	2	0.55%
25	3	0.83%
26	3	0.83%
27	11	3.04%
28	24	6.63%
29	9	2.49%
30	6	1.66%
31	2	0.55%
32	2	0.55%
33	6	1.66%
34	5	1.38%
35	8	2.21%
36	8	2.21%
37	16	4.42%
38	7	1.93%
39	2	0.55%
40	2	0.55%
42	2	0.55%
44	2	0.55%
45	2	0.55%
48	37	10.22%
49	26	7.18%
50	15	4.14%
51	4	1.10%
54	1	0.28%
56	1	0.28%
58	6	1.66%
59	4	1.10%
60	3	0.83%
61	1	0.28%
62	1	0.28%

Table 2 (continued)

Distribution of firms with OCF-based incentive plans across two-digit SIC codes from 1992 to 2004 (for firms that are in the Compustat for which data are available for analysis).

SIC	#Firms	Percent of sample
63	1	0.28%
65	1	0.28%
67	3	0.83%
70	6	1.66%
72	4	1.10%
73	33	9.12%
76	1	0.28%
78	3	0.83%
79	5	1.38%
80	11	3.04%
82	1	0.28%
83	1	0.28%
87	7	1.93%
Total	362	100.00%

Table 3

Comparison of indicators of business growth, external financing constraint, and poor relative earnings quality between firms that use OCF in their incentive plans (362 firms) and control sample of firms that do not include OCF in incentive plans (362 firms) during the sample period (1992 to 2006).

Panel A: Proportion of plan users versus non-users whose growth indicator exceeds the threshold indicator as various defined in Table 1.

	Indicator > Threshold			
	Proportion of plan users	proportion non-users	*Diff*	*Z-value*
SGR	0.45038	0.24250	0.20788	22.14
IGR	0.53450	0.22862	0.30588	33.20
WGR	0.47448	0.22748	0.24700	26.88
EVTA	0.46928	0.22892	0.24036	26.10
EVOI	0.62004	0.22546	0.39458	42.98
EVECF	0.54679	0.15105	0.39574	50.09
R&D	0.33223	0.17278	0.15945	48.31
XFD	0.83270	0.33346	0.49924	19.24

SGR = 1 if firm-year sales growth is higher than the median sales growth for firms in the same two-digit SIC code that year, and 0 otherwise: Sales growth = $\Delta \text{Sales}_t/\text{Sales}_{t-1}$; *IGR*, equals 1 if firm-year capital expenditure growth is higher than the median growth for firms in the same two-digit SIC code for the year, and 0 otherwise: CAPX growth = $\Delta \text{Capital expenditures}_t/\text{Capital expenditures}_{t-1}$; *WGR*, equals 1 if firm-year growth in working capital is higher than the median growth in working capital for firms in the same two-digit SIC code for the year, and 0 otherwise: WC growth = $\Delta \text{Working capital}_t/\text{Working capital}_{t-1}$; EVTA = 1 if firm-year ratio of enterprise value to total assets is higher than the median ratio for firms in the same two-digit SIC code for the year, and 0 otherwise: MVA/BVA = (Market equity + Total assets – Book equity)/Book assets; EVOI = 1 if firm-year ratio of enterprise value to operating income is higher than the median ratio for firms in the same two-digit SIC code for the year, and 0 otherwise: MVA/OI = (Market equity+Total asset – Book equity)/Operating income; EVECF = 1 if firm-year ratio of enterprise value to enterprise cash flow is higher than the median ratio for firms in the same two-digit SIC code for the year, and 0 otherwise: MVA/EOCF = (Market equity + Total assets – Book equity)/OCF before interests & taxes; R&D = 1 if firm-year ratio of research & development costs to net property, plant, & equipment is higher than the median ratio for firms in the same two-digit SIC code for the year, and 0 otherwise; XFD = 1 for a firm-year if the firm issued debt in the current or prior year, and 0 otherwise.

Table 3 (continued)

Panel B: Proportion of plan users versus non-users whose level of external financing constraint exceeds the threshold indicator as variously defined.

Indicator > Threshold

	proportion of plan users	proportion of non-users	*Diff*	*Z-value*
NFCF	0.50284	0.84690	-0.34406	-43.37
DIV_MSS	0.56616	0.84665	-0.28049	-35.39
LOSS	0.15406	0.70995	-0.55589	-55.79
ZSC	0.62382	0.86132	-0.23750	-31.25
B_rtg	0.43526	0.89646	-0.46120	-68.05
C_rtg	0.78308	0.96654	-0.18346	-45.57
RETN	0.67297	0.88021	-0.20724	-29.01
SIZE	0.15879	0.73107	-0.57228	-58.72

NFCF = 1 if free cash flow for the previous year is negative for a firm-year, and 0 otherwise: Free Cash Flow = OCF – Capital expenditures; DIV_MSS =1 if the firm missed/cut dividends in the previous or current year, and 0 otherwise; LOSS = 1 if operating income for a firm-year is negative over two prior years, and 0 otherwise; ZSC = 1 if Altman's Z-score of financial health is less than 1.81, and 0 otherwise; *B_rtg* = 1 if a firm has long-term debt at the beginning of the year, which is either unrated or rated speculative or lower by S&P, and 0 otherwise; *C_rtg* = 1 if a firm's commercial paper rating by S&P at the beginning of the year is speculative or in default, and 0 otherwise: Commercial paper rating is by S&P; RETN = 1 if a firm-year retention rate, defined as the ratio of operating income to the sum of dividends and stock buyback, is greater than the median retention rate for firms in the same two-digit SIC code for the year, and 0 otherwise: Earnings retention rate = Income /(Dividend + stock repurchases); SIZE = 1 if a firm-year total assets is less than the median total assets for firms in the same two-digit SIC code for the year, and 0 otherwise.

Panel C: Proportion plan users versus non-users whose relative earnings quality indicator exceeds the threshold indicator as various defined.

Indicator >Threshold

	proportion of plan users	proportion of non-users	*Diff*	*Z-value*
sdv_REQ	0.40121	0.26860	0.13261	13.68
chg_REQ	0.45841	0.18300	0.27541	32.43
avg_REQ	0.34688	0.31115	0.03574	3.53
DAQ	0.53497	0.19302	0.34195	39.41
TAQ	0.55009	0.23093	0.31916	34.51
CYCLE	0.80057	0.35772	0.44285	42.19
SPI	0.73110	0.32806	0.40304	39.18

sdv-REQ = 1 if the firm-year ratio of the standard deviation of earnings to standard deviation of OCF is higher than the median ratio for firms in the same two-digit SIC code for the year, and 0 otherwise; *chg-REQ* = 1 if the firm-year ratio of 3-year cumulative changes in earnings to 3-year cumulative changes in OCF is higher than the median ratio for firms in the same two-digit SIC code for the year, and 0 otherwise; *avg-REQ* = 1 if the firm-year ratio of 3-year cumulative earnings to 3-year cumulative operating cash flows for the firm-year is higher than the median ratio for firms in the same two-digit SIC code for the year, and 0 otherwise; *DAQ* = 1 if the absolute value of firm-year accrual residual from the modified Jone's model is larger than the median absolute residual for firms in the same two-digit SIC code for the year, and 0 otherwise; *TAQ* = 1 if the firm-year absolute total accruals are less than the median absolute total accrual for firms in the same two-digit SIC code for the year, and 0 otherwise; *CYCLE* = 1 if the length of operating cycle for the firm-year is longer than the median cycle for firms in the same two-digit SIC code for the year, and 0 otherwise: Operating cycle = $[365\div(\#13\div(\#2_t+\#2_{t-1})) + 365\div(\#41\div(\#3_t+\#3_{t-1}))]$; *SPI* = 1 if the ratio of the sum of the absolute value special items for two previous years to book value of equity is higher than the median ratio for firms in the same two-digit SIC code for the year, and 0 otherwise: Special items is shown as item #17 in the Compustat: *SPI* = Sum of absolute special items for two prior years ÷ Book value $[(\#17_t + \#17_{t-1})\div \#60]$.

Table 4

Comparison of the mean and median indexes of growth (*idx_GRO*), financing constraint (*idx_CON*), and low relative earnings quality (*idx_REQ*) between plan users and industry-matched non-users sampled from 1992 for 2006; indexes are obtained from simple aggregation of the indicator variables of the of the three business conditions defined in Table 1.

Panel A: Comparison of mean composite indicators between plan users and non-users

	Plan includes OCF incentive	Plan excludes OCF incentive		
	Mean	*Mean*	*diff*	t-value
idx_GRO	4.260	1.810	2.45	24.76***
idx_CON	3.897	6.739	-2.84	-38.93***
idx_REQ	3.310	1.605	1.70	24.89***

Panel B: Comparison of median composite indicators between plan users and non-users

	Plan includes OCF incentive	Plan excludes OCF incentive		
	Median	*Median*	*diff*	Z-value
idx_GRO	4.000	1.000	3.00	45.56***
idx_CON	4.000	8.000	-4.00	-49.36***
idx_REQ	3.000	1.000	2.00	42.84***

idx_GRO, *idx_CON*, and *idx_REQ* are indexes of growth, external financing constraint, and low relative earnings quality obtained by summing across the indicators of business growth, external financing constraint, and low relative earnings quality, respectively for each firm-year. The indicators for the respective business conditions are defined and described in Table 1.

Table 5

Logit analyses of the effects of business growth, external financing constraint, and poor relative earnings quality on the likelihood of contracting with OCF.

Panel A: Univariate logit analysis of the effect of the growth, external financing constraint, and poor relative earnings quality on the likelihood of contracting with OCF.

	idx_GRO	*idx_CON*	*idx_REQ*
Intercept	-5.9586	-1.4146	-5.7390
(std. error)	(0.05)	(0.05)	(0.04)
Indicator_coeff.	0.4382	-0.5893	0.4507
(std. error)	(0.01)	(0.01)	(0.01)
%Concodant	74.5%	76.6%	71.7%
95% confidence limits for the odds ratio	1.52 – 1.58	0.54 – 0.57	1.54 – 1.630

Panel B: Multivariate logit analysis of the joint effects of growth, financing constraint, and poor relative earnings quality on the likelihood of contracting with OCF.

	Parm estimate	Stderr	χ2-value	P-value
Intercept	-3.5286	0.0930	1440.8851	0.0001
idx_GRO	0.1871	0.0122	236.6003	0.0001
idx_CON	-0.4630	0.0119	1520.3243	0.0001
idx_LEQ	0.3042	0.0144	447.3815	0.0001
%Concordance	85.9%			

	95% confidence limits Odd ratio estimates		
idx_GRO	1.177	–	1.235
idx_CON	0.615	–	0.644
idx_LEQ	1.318	–	1.394

idx_GRO, *idx_CON*, and *idx_REQ* are indexes of growth, external financing constraint, and low relative earnings quality obtained by summing across the indicators of business growth, external financing constraint, and low relative earnings quality, respectively for each firm-year. The indicators for the respective business conditions are defined and described in Table 1.

Table 6

Factor model of growth, external financing constraint, and low relative earnings quality†

Panel A: Factor loadings and coefficients for indicators of business growth (*fac_GRO*).

Indicator variable	*Factor loading* (ℓ)	*Scoring coefficient*
SGR	0.69111	0.20823
IGR	0.69502	0.20940
WGR	0.65451	0.19720
EVTA	0.61310	0.18472
EVOI	0.69866	0.21050
EVECF	0.64724	0.19501
RD	0.51751	0.15592
XFD	0.61581	0.18554

Panel B: Factor loadings and coefficients for indicators of external financing constraint (*fac_CON*).

Indicator variable	*Factor loading* (ℓ)	*Scoring coefficient*
NFCF	0.60725	0.17851
DIV_MSS	0.73355	0.21564
LOSS	0.81327	0.23907
ZSC	0.47399	0.23907
B_rtg	0.66358	0.19507
C_rtg	0.53307	0.15670
RETN	0.58802	0.17286
SIZE	0.73387	0.21573

Panel C: Factor loadings and coefficients for indicators of low relative earnings quality (*fac_REQ*).

Indicator variable	*Factor loading* (ℓ)	*Scoring coefficient*
sdv_REQ	0.68120	0.25536
chg_REQ	0.70045	0.26257
avg_REQ	0.56823	0.21301
DAQ	0.63825	0.23926
TAQ	0.63661	0.23864
CYCLE	0.66578	0.24958
SPI	0.64168	0.24054

†See, Table 1 for full definition and description of the indicator variables.

Factor loading (ℓ) measures the extent the latent factor (i.e., *growth, financing constraint,* or *low relative earnings quality)* is reflected on the indicator; the scoring coefficients for each factor, similar to regression coefficients, are fitted to the corresponding firm-year indicators to generate the firm-year factor indicator.

Table 7

Comparison of factor indexes of growth (*fac_GRO*), financing constraint (*fac_CON*), and low relative earnings quality (*fac_REQ*) between plan users and industry-matched non-users sampled from 1992 for 2006; factor indexes are obtained from factor analysis of the indicators of the respective business conditions defined in Table 1.

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	Incentive plans include OCF	Incentive plans exclude OCF		
	Mean	*Mean*	*diff.*	*t-value*
fac_GRO	1.135	-0.011	1.146	53.12***
fac_CON	-1.540	0.015	-1.555	-70.55***
fac_REQ	0.955	-0.009	0.964	44.52***
	Median	*Median*	*Diff.*	Z-value
fac_GRO	1.056	-0.453	1.509	42.91***
fac_CON	-1.452	0.694	-2.252	-49.36***
fac_REQ	0.870	-0.379	1.249	38.63***

fac_GRO, *fac_CON*, and *fac_REQ* indexes of business growth, external financing constraint, and low relative earnings quality derived from factor analyses of the indicators of business growth, external financing constraints, and low relative earnings quality, respectively. The indicators are defined and described in Table 1.

Table 8
Logit analyses of the effects of growth, external financing constraint, and poor relative earnings quality on the likelihood of contracting with OCF.

Panel A: Univariate logit analysis of the effect growth, external financing constraint, and poor relative earnings quality on a firm's propensity to use OCF in incentive contracts.

Indicator is	*fac_GRO*	*fac_CON*	*fac_LEQ*
Intercept	-5.1450	-5.2985	-5.006
(std. error)	(0.03)	(0.03)	(0.03)
Factor_coeff	0.9241	-0.9641	0.796
(std. error)	(0.02)	(0.02)	(0.02)
%Concordance	76.7%	81.7%	74.2%
95% confidence limits for odds ratio estimates	2.42 – 2.62	0.37 – 0.39	2.13 – 2.30

Panel B: Multivariate logit analysis of the joint effects of growth, financing constraint, and poor relative earnings quality on the likelihood of contracting with OCF.

	Parameter estimate	Std_error	χ^2-value	p-value
Intercept	-5.7442	0.0432	17699.7753	0.0001
fac_GRO	0.4210	0.0253	276.6564	0.0001
fac_CON	-0.7539	0.0185	1661.6439	0.0001
fac_REQ	0.5415	0.0251	466.2361	0.0001
%Concordance	85.8%			

	95% confidence limits for odds ratio estimates		
fac_GRO	1.450	–	1.601
fac_CON	0.454	–	0.488
fac_REQ	1.636	–	1.805

fac_GRO, *fac_CON*, and *fac_REQ* indexes of business growth, external financing constraint, and low relative earnings quality derived from factor analyses of the indicators of business growth, external financing constraints, and low relative earnings quality, respectively. The indicators are defined and described in Table 1.

Table 9

Multivariate logit analysis of the additional effect of governance structures on the likelihood of contracting on OCF: The governance variables are: *CEO_duality* = 1 if CEO is chairman of the board, and 0 otherwise; *Boardsize_sales* = interaction of the natural log the number of directors on the board and log of sales; *Boardsize_leverage* = interaction of the log of the natural log of the number of directors on the board and leverage; *Boardsize_nsegment* = interaction of the natural log of the number of directors on the board and the natural log of the number of business segments; *Board_independence* = proportion board members that are fully independent; *Institution_share* = the proportion of the firm's shares held by institutions; *CEO_equity* = ratio of the market value of CEO equity to the market value of the firm (CEO_equity = 0 for missing values of shares held by the CEO). For analysis, all governance variables are lagged one period.

Panel A: Variables include *idx_GRO*, *idx_CON*, and *idx_REQ* obtained by summing across the indicators of business growth, external financing constraint, and low relative earnings quality, respectively for each firm-year. The indicators for the respective business conditions are defined and described in Table 1.

Variable	Parameter estimate	Std_error	χ^2-value	p-value
Intercept	-6.3205	0.5930	113.5939	0.0001
fac_GRO	0.0750	0.0331	5.1210	0.0236
fac_CON	-0.1521	0.0473	10.3490	0.0013
fac_REQ	0.1438	0.0418	11.8459	0.0006
$CEO\_duality_{t-1}$	-0.2273	0.1075	4.4657	0.0346
$Board\_indepenence_{t-1}$	1.6921	0.4849	12.1758	0.0005
$Institution\_share_{t-1}$	1.3647	0.2829	23.2755	0.0001
CEO_equity_{t-1}	0.3541	0.1216	8.4829	0.0036
Boardsize_sales	0.0302	0.0131	5.2949	0.0214
Boardsize_leverage	1.0218	0.1259	65.8550	0.0001
Boardsize_nsegment	0.1577	0.0901	3.0676	0.0799
Board_classified	-0.2903	0.1067	8.4829	0.0065
Concordance	**74%**			

	95% Confidence limits for odds ratio	
fac_GRO	1.010	1.150
fac_CON	0.783	0.942
fac_REQ	1.064	1.253
$CEO\_duality_{t-1}$	0.645	0.984
$Board\_independence_{t-1}$	2.306	14.049
$Institution\_share_{t-1}$	2.452	6.815
CEO_equity_{t-1}	1.123	1.808
Boardsize_sales	2.099	1.058
Boardsiz_leverage	2.249	3.556
Boardsize_nsegment	0.981	1.397
Board_classified	0.607	0.922

Table 9 (Continued)

Panel B: Variables include *fac_GRO*, *fac_CON*, and *fac_REQ* derived from factor analyses of the indicators of business growth, external financing constraints, and low relative earnings quality, respectively. The indicators are defined and described in Table 1

Variable	Parameter estimate	Std_error	χ^2-value	p-value
Intercept	-6.6882	0.4817	192.7576	0.0001
idx_GRO	0.1532	0.0692	4.8973	0.0269
idx_CON	-0.2340	0.0734	10.1645	0.0014
idx_REQ	0.2992	0.0772	15.0300	0.0001
CEO_duality$_{t-1}$	-0.2298	0.1076	4.5579	0.0328
Board_independence$_{t-1}$	1.6520	0.4857	11.5682	0.0007
Institution_share$_{t-1}$	1.4000	0.2832	24.4399	0.0001
CEO_equity$_{t-1}$	0.3764	0.1217	8.4045	0.0037
Boardsize_sales	0.0287	0.0136	4.4137	0.0357
Boardsize_leverage	1.0089	0.1259	64.2268	0.0001
Boardsize_nsegment	0.1551	0.0900	2.9703	0.0848
Board_classified	-0.2873	0.1068	7.2354	0.0071
Concordance	**76%**			

	95% Confidence limits for odds ratio	
idx_GRO	1.018	1.335
idx_CON	0.685	0.914
idx_REQ	1.159	1.569
CEO_duality$_{t-1}$	0.644	0.981
Board_independence$_{t-1}$	2.014	13.517
Institution_share$_{t-1}$	2.328	7.064
CEO_equity$_{t-1}$	1.121	1.806
Boardsize_sales	1.002	1.057
Boardsiz_leverage	2.143	3.510
Boardsize_nsegment	0.979	1.393
Board_classified	0.609	0.925

Table 10

Multinomial logit analyses of the economic determinant of OCF-incentive type

Panel A: Multinomial logit regression of plan types on aggregate indicators of growth, external financing constraint, and low relative earnings quality.

	STIP-only	*LTIP-only*	*STIP-LTIP-mix*
Intercept	1.2110***	-0.9362***	-0.4913***
	(0.33)	(0.51)	(0.46)
idx_GRO	0.0391	0.0583	0.1172***
	(0.04)	(0.06)	(0.05)
idx_CON	0.0118	-0.1437***	-0.1392***
	(0.04)	(0.0500)	(0.05)
idx_REQ	0.0841*	0.1657**	0.0684
	(0.05)	(0.08)	(0.07)

Panel B: Multinomial logit regression of plan types on common factor measures of growth, external financing constraint, and low relative earnings quality

	STIP-only	*LTIP-only*	*STIP-LTIP-mix*
Intercept	1.5244***	-1.3439***	-1.0255***
	(0.15)	(0.26)	(0.23)
fac_GRO	0.0992	0.1346	0.2396**
	(0.09)	(0.13)	(0.11)
fac_CON	0.0477	-0.2077**	-0.2539***
	(0.07)	(0.10)	(0.10)
fac_REQ	0.1721*	0.3235**	0.1578
	(0.09)	(0.15)	(0.13)

STIP-only is a plan structure in which explicit or implied compensation weight of OCF is 5% or greater, and strictly tied to annual OCF performance; *LTIP-only* is a plan structure in which explicit or implied compensation weight of OCF is 5% or greater, and strictly tied to long-term OCF performance; *STIP-LTIP-mix* is a plan structure in which *STIP-only* and *LTIP-only* are in effect concurrently; *uncommitted* is the reference plan in analysis and reflects a structure in which the use of OCF is marginal or negligible.
idx_GRO, *idx_CON*, and *idx_REQ* are obtained by summing across the indicators of business growth, external financing constraint, and low relative earnings quality, respectively, *fac_GRO*, *fac_CON*, and *fac_REQ* are factors scores from factor analysis of the indicators of business growth, external financing constraints, and low relative earnings quality, respectively. All indicators are defined in Table 1.
*Significant at 10% probability; **Significant at 5% probability; ***Significant at 1% probability

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