

## **SOX 404 Effective Internal Control Systems and Executive Compensation**

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*Using a two-stage regression approach, we examine the relation between management's assessment of the effectiveness of firms' internal control systems and components of executive compensation. In the first stage model, we decompose compensation into its fitted (i.e., explained by firm's economic characteristics) and residual components. In the second stage model, we estimate a logit regression of management's assessment of internal control effectiveness on the fitted and residual components of compensation. We find that internal control effectiveness is related to the fitted components of compensation, but unrelated to the residual components. These findings are consistent with (1) the explained portion of compensation providing managers with the incentives to exert effort towards producing effective internal controls, and (2) the unexplained portion representing another form of "pay without performance".*

### **INTRODUCTION**

In 2002, as part of its goal to increase corporate responsibility, Congress passed the Sarbanes Oxley Act (SOX). One of the mandates of SOX legislation, under Section 404, requires the manager to affirm his responsibility for establishing and maintaining adequate internal controls, to assess the internal control systems, and to disclose the results of such assessment in an internal control report. Though developing and maintaining an effective internal control system may provide many benefits to market participants, these additional responsibilities impose significant additional costs on the manager. It follows that managers must weigh the costs of their efforts to produce effective internal controls, against potential benefits. Incentives may be needed. Thus, the firm may adjust its compensation contracts to induce its managers to exert the needed effort. Given the above discussion, our main research question is to examine whether executive compensation is a cross-sectional determinant of effective internal control.

Under SOX 404, the manager must state whether the firm's overall internal control system is assessed as effective or ineffective; and if ineffective, the specific material weakness(es) discovered in the internal control system. The significant costs and complexity of compliance

efforts prompted the SEC to issue interpretive guidance to assist management in implementing its ruling in an efficient manner (SEC Release No. 33-8810). Management must use its knowledge of the industry and business characteristics to identify the risks of material misstatement in the financial reports. Once identified, management must determine whether it has controls in place to address those risks, and finally generate the appropriate procedures to provide evidence of the effective operation of those controls.

Management must appropriately consider entity-level controls, which have significant impact on the entire internal control system. Entity-level controls include those related to the “tone at the top”, management’s operating style, management’s leadership in modeling integrity and an ethical culture, the opportunity for management override of controls, etc. The tone that management sets and its own conduct is critical to the design and maintenance of effective internal controls over financial reporting. The view adopted in this study is that the relative effectiveness of a firm’s internal control system is a direct outcome of the specific efforts that the manager exerts—indeed the SEC explicitly asserts that the manager must exert a “significant amount” of effort to achieve this outcome.

The SEC further asserts that developing and maintaining an effective internal control system provides many benefits to market participants. First, effective internal controls help ensure that reported accounting numbers conform to GAAP and fairly reflect the substance of the firm’s economic transactions. Management’s disclosures regarding effective internal controls therefore provide financial statement users with greater assurance about the reliability of financial reporting. Consistent with this, Ashbaugh-Skaife et al. (2008) find that firms reporting internal control weaknesses report noisier, lower quality accruals. Financial statement users can also rely on relatively greater quality of the firm’s monitoring mechanisms. For example, Krishnan (2005) documents that firms changing auditors that do not report the presence of internal control problems on Form 8-K (either reportable conditions or material weaknesses) have relatively higher quality audit committees (greater independence and financial expertise). Second, because the improved reliability of financial reporting helps lower information risk, effective internal controls may contribute to lowering the cost of equity capital (e.g., Ashbaugh-Skaife et al., 2007). Third, because effective internal controls also help prevent the misappropriation of assets, a firm’s report of effective internal controls also helps market participants assess whether managers are adequately fulfilling their stewardship responsibilities. However, studies provide mixed evidence on the wealth effects of internal control effectiveness. De Franco et al. (2005) and Hammersley et al. (2008) find negative market reaction to voluntary disclosures of internal control deficiencies (under SOX Section 302), suggesting that internal control deficiencies are related to lower firm value. In contrast, Beneish et al. (2007) do not find any market reaction to SOX 404 disclosures of ineffective internal controls and suggest that larger, accelerated filers operate in an environment of lower information risk.

Managers, then, must weigh the costs of their efforts to produce effective internal controls (including a possible diversion from pursuing positive net present value investments), against potential benefits (notwithstanding the mixed evidence on firm value, there are other benefits, for example, positive leadership and ethical reputation effects). More directly, the firm may adjust its compensation contracts to induce its managers to exert the needed effort. This discussion suggests that executive compensation may be a cross-sectional determinant of effective internal controls.

A broad spectrum of constituents has paid considerable attention to the cost of compliance with SOX Section 404. In a survey conducted by CRA International, Year 1 compliance costs

represented 0.38% and 0.11% of average revenues for responding “smaller” and “larger” firms, respectively. Year 2 compliance costs declined considerably, but still accounted for 0.24% and 0.05% of average revenues (an average total cost of \$860,000 for smaller companies and \$4.8 million for larger companies). Documented costs include internal issuer, third party, and 404 audit fees.

Responding to the evidence that SOX 404 compliance costs went well beyond the initial SEC estimates, the SEC provided additional guidelines effective June 27, 2007, to help enterprises achieve streamlined and less costly SOX 404 compliance. These guidelines document that the manager must exert a significant amount of effort and perform a vast array of specific tasks to create an effective internal control system (e.g., SEC Release Nos. 33-8810; 34-55929). For instance, the manager must identify significant financial reporting risks and the controls to address identified risks, which includes preventive controls, as well as information technology controls; the manager must also identify potential changes in these risks and controls. The manager must then evaluate evidence of the operating effectiveness of the internal controls over financial reporting, including (i) the complexity of each control, (ii) the judgment required to operate each control, (iii) the risk of management override of each control, (iv) the degree to which each control relies on the effectiveness of other controls, (v) supporting evidence of the adequate operation of the control from prior year(s), and (vi) the nature and materiality of misstatements that the control is intended to prevent or detect.

Given the tasks described above, adhering to SOX legislation and achieving an effective internal control system is certainly costly to the manager. Many of the tasks require a high level of managerial judgment (buttressed by the external auditor’s judgment), and require a high level of managerial coordination and organization. Indeed, in its report on the competitive condition of the U.S. capital markets, the Committee on Capital Markets Regulation cites a “crowding out” effect—compliance with SOX has the significant potential to divert managers away from what they may deem to be their priority—pursuing value-enhancing activities directly related to the core strategic/business issues of the firm. Clearly, these are costs borne by the manager.

Classical agency theory states that the separation of ownership from control creates a misalignment between the incentives of managers and those of shareholders (e.g., Jensen and Meckling, 1976, Fama, 1980). Incentive compensation increases the sensitivity of the manager’s compensation to changes in firm value; this helps mitigate the misalignment of incentives so that managers exert more effort to achieve specific outcomes that are beneficial to the shareholders and increase firm value (e.g., Jensen and Murphy, 1990, Lambert and Larcker, 1987).

In the context of the current study, despite the potential benefits that shareholders derive from effective internal controls, managers may not have incentives aligned with those of shareholders, and may therefore be averse to bearing the costs and exerting the effort towards developing/maintaining effective internal controls. Higher levels of incentive compensation may help align incentives so that managers do exert such effort towards achieving an effective internal controls system. This discussion naturally leads to our main empirical prediction (stated in alternative form): *Incentive-based compensation is positively related to the probability of a firm exhibiting effective internal controls.*

We examine a sample of 2,215 firm-year observations of accelerated filers required to comply with Section 404 of SOX legislation during the 2004-2006 period. Motivated by prior studies that suggest that executive compensation may be “excessive” (e.g., Core et al., 1999), we implement a two-stage model to determine whether there is a differential relation between internal control effectiveness and the explained versus unexplained portions of total

compensation. In the first-stage of the model, we estimate the portion of compensation that is explained by firm-specific economic determinants, and the remaining portion that is unexplained by such determinants. In the main, second-stage model, we estimate a logit regression of internal control effectiveness regressed on the fitted (explained) and residual (unexplained) components of compensation. In this two-stage model of internal control effectiveness, we find that the probability of internal control effectiveness is positively related to the fitted value of total compensation, but is not related to the residual component of compensation. We further estimate the two-stage compensation model for three separate measures of compensation; salary, bonus, and equity, and find that internal control effectiveness is positively related to the fitted values of each measure of compensation, but not to the residual values of each measure. The results are robust to controlling for experience and reputational qualities of the manager. Overall, our findings are consistent with the hypothesis that incentive compensation aligns a manager's incentives with those of shareholders, motivates the manager to exert effort towards increasing firm value, and therefore towards the creation of an effective internal control system. The results from our two-stage analysis are consistent with the findings of Core et al. (1999), Erickson, Hanlon and Maydew (2006) and other studies documenting that unexplained compensation may reflect "pay-without-performance". Our findings contribute further to the cost-benefit analysis of SOX Section 404 by documenting an additional cost of compliance: incentive-based executive compensation. Our findings also contribute to the research examining firm specific determinants of internal control effectiveness that has yet to consider the impact of incentive-based executive compensation.

## **SAMPLE SELECTION AND DESCRIPTIVE STATISTICS**

### **Sample Selection**

The Audit Analytics database provides data on managements' assessment of the effectiveness of their company's internal controls (from 10-K filings). For the 2004-2006 period, we start with 10,231 firm-year observations for companies that are required to comply with SOX Section 404, effective November 2004. We merge this initial sample with required data from ExecuComp, CRSP, and Compustat, resulting in a final sample of 2,215 firm-year observations. This final sample consists of 2,014 observations (89.9% of the sample) that report effective internal controls (ICEFF=1), and 201 (9.1%) that report having one or more material weaknesses and therefore ineffective internal controls (ICEFF=0).

### **Descriptive Statistics**

Untabulated descriptive statistics reveal the following. Overall, firms in our sample are large in size with a mean market value of equity of \$5,303.2 million and are relatively complex, having three segments of operations on average. This is consistent with the initial required compliance with Sox 404 by accelerated filers that are larger, more established firms. Firms in the sample have relatively high growth prospects with a mean average 5-year market-to-book of 3.08. Firms in the sample report mean annual stock returns of 0.146, mean accounting earnings of .109 and on average have a low likelihood of financial distress (as determined by Altman Z-scores). On average, firms that report effective internal controls (ICEFF=1) pay their CEOs higher compensation. We find similar evidence when we examine the individual components of compensation, including salary (SALARY), bonus (BONUS), and equity-based compensation (EQUITY). Consistent with prior studies, we find firms that report effective internal controls

also report higher earnings (EARN) and earnings changes ( $\Delta$ EARN), higher stock returns (RETURNS), and are larger in size (SIZE). Conversely, firms that report ineffective internal controls (ICEFF=0) report a higher percentage of accounting losses (PCTLOSS), exhibit higher levels of risk (STD60, SEBIT), and are more likely to be undergoing restructuring (RESTRUCTURE).

Untabulated Pearson correlations reveal a modest level of correlation between internal control effectiveness (ICEFF) and different proxies for compensation. For instance, ICEFF and total compensation are positively correlated (0.101,  $p=0.003$ ), as are ICEFF with other disaggregated components of compensation. Of particular note, we find that the correlations among the individual components of compensation are very highly correlated. Specifically, we find that SALARY and BONUS are correlated (0.422,  $p=0.000$ ), as are SALARY and EQUITY (0.076,  $p=0.000$ ). Ranked Spearman correlations of SALARY and BONUS, BONUS and EQUITY, and SALARY and EQUITY show correlation coefficients of 0.346, 0.211, 0.592, respectively. This high level of correlation is a prelude to our later tests, where we find that the individual components of compensation cannot be included in our empirical model together due to high multicollinearity.

## RESEARCH DESIGN

We implement a two-stage model of internal control effectiveness. In the first stage, we implement an executive compensation model that estimates the economic determinants of executive compensation (e.g. Core et al., 1999). In estimating this first-stage model, we decompose total compensation into two components—a fitted portion that is explained by firm-specific economic determinants, and a remaining residual portion that is unexplained by these determinants. In the second stage, we estimate a logit regression of the effectiveness of internal controls regressed on the fitted and residual components of compensation (derived from the first-stage). The main, second-stage model therefore estimates the probability of a firm reporting effective internal controls, and whether the disaggregated components of executive compensation are cross-sectional determinants of this probability.

### First-stage Model

Our first-stage model is motivated by Core et al. (1999) and other studies that examine the cross-sectional determinants of executive compensation (e.g. Smith and Watts, 1992; Bebchuk and Grinstein, 2005). Estimating this model gives us fitted and residual components of compensation. The model is:  $COMPENSATION = \alpha_0 + \alpha_1 SALES_{t-1} + \alpha_2 EBIT_{t-1} + \alpha_3 MMTB + \alpha_4 RETURNS + \alpha_5 STDDEV\_RET + \alpha_6 STDDEV\_ROA + \alpha_7 RETURNS_{t-1} + \varepsilon$ , where COMPENSATION is one of four proxies: LTDC (natural log of total annual CEO compensation), LSALARY (natural log of total annual CEO cash compensation), LBONUS (natural log of total annual CEO bonus compensation), or LEQUITY (natural log of total annual CEO equity compensation).

We briefly motivate each variable (for further explication, refer to Smith and Watts, 1992; Core et al., 1999; Bebchuk and Grinstein, 2005).  $SALES_{t-1}$  is lagged revenues scaled by lagged total assets. SALES is a measure of firm size; larger firms are more likely to require a manager of higher quality; hence, compensation is expected to increase with SALES.  $EBIT_{t-1}$  is lagged income before extraordinary items and interest expense scaled by lagged total assets, and RETURNS ( $RETURNS_{t-1}$ ) are contemporaneous (lagged) twelve-month market-adjusted stock

returns. EBIT and RETURNS are measures of firm performance; assuming that compensation is tied to firm performance, these measures should be positively related to compensation. STDDEV\_RETURN is the natural log of the standard deviation of prior 60 monthly stock returns, and STDDEV\_ROA is the natural log of the standard deviation of prior 5 years' return on assets. SDEV\_RET and SDEV\_ROA are proxies for firm risk; incentive compensation should increase with firm risk. MMTB is the prior 5-year mean market-to-book ratio. MMTB is a proxy for the firm's growth opportunities. Compensation is increasing in the presence of growth opportunities if increased uncertainty makes it more difficult to monitor management.

### **Second-stage (main) Model**

In our main, second-stage model, we estimate a logit regression of the effectiveness of internal controls regressed on fitted and residual components of executive compensation from our first-stage model. The main, second-stage internal control model is:  $ICEFF = \beta_0 + \beta_1 F\text{-COMP} + \beta_2 R\text{-COMP} + \beta_3 RESTRUCTURE + \beta_4 EARN + \beta_5 \Delta EARN + \beta_6 INVRISK + \beta_7 SIZE + \beta_8 PCT\_LOSS + \beta_9 SEGMENTS + \beta_{10} LITIGATION + \varepsilon$ , where  $ICEFF=1$  if firm reports effective internal controls,  $ICEFF=0$  if firm reports ineffective internal controls. F-COMP and R-COMP are the fitted (explained) and residual (unexplained) components of the four measures of compensation, respectively, estimated from the first-stage model (LTDC, LSALARY, LBONUS, and LEQUITY).

We include several control variables that are motivated from prior studies (e.g., Ashbaugh-Skaife et al., 2007). We briefly provide motivation for each variable. RESTRUCTURE is a dummy variable equal to 1 if firm was involved in restructuring in prior three years, 0 otherwise. Firms undergoing restructuring (RESTRUCTURE) are less likely to have effective internal controls due to the many operational complexities and additional risks that arise from the restructuring transactions and the ensuing significant changes in the firm's infrastructure. EARN is income before extraordinary items and interest expense scaled by lagged total assets.  $\Delta EARN$  is change in income before extraordinary items and interest expense, scaled by lagged total assets. Both the level and changes in income (EARN and  $\Delta EARN$ ) are proxies for the firm's resources to invest in internal controls, as well as proxies for firm performance, where firms with higher (lower) EARN and  $\Delta EARN$  are more (less) likely to have effective internal controls. INVRISK is 3-year mean of inventory scaled by lagged assets. A firm's level of inventory (INVRISK) is subject to value changes due to obsolescence and requires the manager's judgment in applying GAAP. Hence, inventory can be considered a proxy for measurement risk in applying GAAP, where firms with higher levels of inventory have greater measurement risk and are less (more) likely to have effective (ineffective) internal controls. SIZE is 3-year average of market value of equity measured as the year-end number of common shares outstanding multiplied by the year-end price per share. Market value of equity (SIZE) is a proxy for firm size, where larger (smaller) firms are more (less) likely to have the resources to invest in effective internal controls. PCTLOSS is average frequency of annual accounting losses during the prior three-year period. The percent of losses a firm experiences in its prior years of operations (PCTLOSS) proxies for financial distress, where distressed firms are less (more) likely to have effective (ineffective) internal controls. SEGMENTS is number of business segments reported. The number of operating segments that the firm operates in (SEGMENTS) is a proxy for the complexity of the firm's operations, where firms with higher (lower) levels of complexity are less (more) likely to have effective internal controls. LITIGATION is an indicator variable if the firm is a member of a highly litigious industry. The risk of litigation

(LITIGATION) may induce the manager to exert more effort to produce effective internal controls.

## EMPIRICAL RESULTS

We estimate four first-stage regressions (untabulated), using each of our four compensation measures (LTDC, LSALARY, LBONUS, and LEQUITY). Overall, we find these first-stage regressions are similar to prior studies. Most variables are statistically significant at the 5% level or better. The LSALARY regression is the best-fit model, with an adjusted- $R^2$  of 0.121.

In our main, second-stage model, we use the fitted and residual components of each of the above compensation measures as independent variables. In Table 1, we present results for the fitted and residual components of total compensation (F-LTDC and R-LTDC, respectively). We find that the fitted component of compensation is significantly positive (1.223,  $p=0.000$ ), suggesting that higher levels of fitted total compensation—that portion of compensation that can be explained by economic determinants—increase the likelihood of effective internal controls. Next, we find that the residual component is also significantly positive (0.184,  $p=0.045$ ), suggesting that even the portion of total compensation that is unexplained by economic determinants is positively related to ICEFF. One interpretation of this result is that the residual component, which is typically considered that portion that is “pay without performance” has simply not been measuring the right kind of performance—this result suggests that this residual component *does* incentivize managers to exert effort towards creating an effective internal controls system. That is, effective internal controls is one aspect of performance that has simply not been measured in prior studies in the context of executive compensation. However, results with respect to disaggregated total compensation should be interpreted cautiously, because in general, we find that while the fitted components of compensation increase the likelihood of effective internal controls, the residual components do not affect the likelihood. As Core et al. (1999) acknowledge, another possibility is that without a theoretically complete model of compensation, our empirical model is misspecified.

**TABLE 1**  
**INTERNAL CONTROL EFFECTIVE AS FUNCTION OF TOTAL COMPENSATION**

	Coefficient	Wald Chi-sq	p-val
Intercept	0.935	4.67	0.031
F-LTDC	1.223	16.69	0.000
R-LTDC	0.184	4.02	0.045
RESTRUCTURE	-0.965	11.67	0.001
EARN	1.135	2.53	0.112
$\Delta$ EARN	1.391	3.58	0.058
INVRISK	-0.003	0.00	0.995
SIZE	0.000	7.14	0.008
PCTLOSS	-0.278	1.27	0.259
SEGMENTS	-0.112	5.71	0.017
LITIGATION	0.051	0.07	0.783
Wald Chi-sq	102.8		0.000

To examine if any individual component of compensation is driving our main results in Table 1, we perform similar tests using the fitted and residual components of LSALARY, LBONUS, and LEQUITY. These results are presented in Tables 2 to 4, respectively. Because we are particularly interested in the incentive components of compensation, we are more interested in the LBONUS and LEQUITY component of compensation, and less interested in the LSALARY component.

In Table 2, we present results for the LSALARY regressions. Here, we find that the fitted component of salary (F-LSALARY) is significantly positive (2.439,  $p=0.000$ ), while the residual component (R-LSALARY) is not significant (0.142,  $p=0.411$ ). This suggests that the salary component (which is typically not considered an incentive-based portion of compensation) is positively related to effective internal controls.

**TABLE 2**  
**INTERNAL CONTROL EFFECTIVE AS FUNCTION OF SALARY**

	Coefficient	Wald Chi-sq	p-val
Intercept	3.191	77.84	0.000
F-LSALARY	2.439	19.39	0.000
R-LSALARY	0.142	0.80	0.411
RESTRUCTURE	-0.900	10.51	0.001
EARN	2.229	10.44	0.001
$\Delta$ EARN	0.847	1.43	0.232
INVRISK	-0.036	0.02	0.888
SIZE	0.000	9.72	0.002
PCTLOSS	-0.028	0.01	0.919
SEGMENTS	-0.124	7.61	0.006
LITIGATION	0.109	0.29	0.598
Wald Chi-sq	101.0		0.000

Next, in Table 3, we present results for the second-stage LBONUS regressions. Here, we find that the fitted component of bonus (F-LBONUS) is significantly related to ICEFF (1.366,  $p=0.000$ ). Consistent with our hypothesis, the component of bonus compensation that is explained by economic determinants further incentivizes managers to exert efforts towards creating effective internal controls. However, the residual component (R-LBONUS) is insignificant (0.008,  $p=0.933$ ), consistent with prior studies that show the residual component to be “pay without performance.”

Lastly, in Table 4, we present results for the LEQUITY regression. We find that the fitted portion (F-LEQUITY) is significant (0.794,  $p=0.000$ ), while the residual component (R-LEQUITY) is not significant (0.033,  $p=0.171$ ). We find that the portion of equity-based compensation that is explained by economic determinants also increases the likelihood of effective internal controls. Conversely, the unexplained residual component is not related to ICEFF. Overall, the empirical results are consistent with our main prediction that executive



compensation helps incentivize otherwise effort-averse managers to exert efforts to bring about a specific output; namely, effective internal controls.

**TABLE 3**  
**INTERNAL CONTROL EFFECTIVE AS FUNCTION OF BONUS**

	Coefficient	Wald Chi-sq	p-val
Intercept	2.767	76.59	0.000
F-LBONUS	1.366	15.72	0.000
R-LBONUS	0.008	0.01	0.933
RESTRUCTURE	-0.903	10.44	0.001
EARN	1.646	5.71	0.017
$\Delta$ EARN	1.060	2.21	0.137
INVRISK	-0.054	0.07	0.800
SIZE	0.000	12.31	0.000
PCTLOSS	-0.151	0.32	0.574
SEGMENTS	-0.116	6.99	0.008
LITIGATION	0.102	0.30	0.586
Wald Chi-sq	97.9		0.000

**TABLE 4**  
**INTERNAL CONTROL EFFECTIVE AS FUNCTION OF EQUITY**

	Coefficient	Wald Chi-sq	p-val
Intercept	2.080	51.53	0.000
F-LEQUITY	0.794	17.71	0.000
R-LEQUITY	0.033	1.91	0.171
RESTRUCTURE	-0.894	10.14	0.001
EARN	1.498	4.52	0.033
$\Delta$ EARN	1.423	3.77	0.051
INVRISK	0.082	0.09	0.766
SIZE	0.000	10.13	0.003
PCTLOSS	-0.142	0.32	0.588
SEGMENTS	-0.095	5.15	0.022
LITIGATION	0.033	0.04	0.866
Wald Chi-sq	100.4		0.000

At this juncture, though it is quite natural to consider the fitted and residual components of each measure of compensation together in one estimation, untabulated results reveal the existence of severe multicollinearity under such a specification. Specifically, as we discussed in

the descriptive statistics section, the untabulated correlations show that SALARY, BONUS, and EQUITY are highly correlated with each other, showing ranked correlations that are as high as 0.566. Indeed, untabulated results reveal that the variance inflation factors (VIF) for a regression of ICEFF on each of the disaggregated components of compensation estimated together are 31.63, 11.33, and 15.51, respectively for the fitted portion F-LSALARY, F-LBONUS, and F-LEQUITY. A common rule of thumb is that models with VIF factors greater than 10 are considered to exhibit serious multicollinearity. Therefore, our VIF factors in excess of 30 indicate extreme multicollinearity. This multicollinearity precludes us from estimating a full model where each of the fitted and residual components of compensation are included in a “full” model.

Our results are robust to several additional (untabulated) controls. First, we include fixed industry and fixed year effects, which have no effect on the significance of our findings. Second, we consider the inclusion of three additional variables: OUTDIR, defined as the average number of other directorships held by the CEO, FRSTYR, a dichotomous variable set to 1 when the firm-year observation reflects a new CEO, and TENURE, a variable that counts the number of years the manager occupies the position of CEO. We include these variable because Murphy (1986) documents that manager specific characteristics influence compensation setting as adjustments are made to better reflect the value of the manager’s human capital as this becomes known over time. In addition, a firm may offer relatively higher compensation to a new CEO as a signal that the manager will have control over the firm’s resources in order to perform his job effectively. Untabulated results reveal that inclusion of these variables do not change the significance of our main findings.

## **SUMMARY AND CONCLUSIONS**

Using a sample of 2,215 firm-year observations of accelerated SOX filers, we examine the relationship between executive compensation and the effectiveness of firms’ internal control systems, a newly available measure of managerial output arising from the SOX Act. We predict that maintaining effective internal control systems imposes greater costs on (and requires higher levels of effort from) the manager, and the firm must therefore grant higher levels of executive compensation to properly incentivize effort-averse managers. We are particularly interested in the extent to which “explained” (by firm-specific economic determinants) versus “unexplained” components of compensation affect the effective internal controls outcome. We find a positive relation between internal control effectiveness and various “explained” components of compensation. This relation generally does not exist with the “unexplained” components, suggesting that the unexplained components generally exhibit “pay without performance”. Our findings contribute further to the cost-benefit analysis of SOX Section 404 by documenting an additional cost of compliance: incentive-based executive compensation. Our findings also contribute to the research examining firm specific determinants of internal control effectiveness that has yet to consider the impact of incentive-based executive compensation.

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