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Internal control weaknesses, agency costs, and the value of cash holdings

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Abstract

Public accounting firms, as part of their audit of publicly traded corporations' financial statements, identify and disclose major weaknesses in these corporations' internal control over financial reporting. These internal control weaknesses are signals to outside stakeholders that current internal control systems are insufficient to constrain opportunistic behavior by managers of these corporations. I find that in the presence of these internal control weaknesses, shareholders discount the value of corporations' cash holdings due to expectations of increased agency costs at these corporations. Further, I find that shareholders do not discount cash holdings when other governance mechanisms are in place to constrain management behavior. My paper contributes to the understanding of how capital markets, in the absence of other shareholder protections, react to situations that signal high agency costs.

1. Introduction

Internal control systems over modern publicly traded corporations' financial reporting processes are vital in preventing operational resources from being misused by those who have access to those resources. Following the widespread failure of internal control systems in the late 1990s, Congress passed the Sarbanes-Oxley Act of 2002 (SOX), which requires large publicly traded firms to receive an audit on the effectiveness of their internal control over financial reporting (hereafter, "internal control"). Prior studies conclude that weaknesses in internal control reported in these audits reflect poor firm information quality and are indicative of an overall failure of the internal control system (Asbaugh-Skaife et al., 2008; Doyle et al., 2007a; Feng et al., 2009). Given that modern corporations are characterized by the separation of ownership from control, which gives rise to agency costs (Demsetz and Lehn, 1985; Jensen and Meckling, 1976; Shleifer and Vishny, 1997), internal control weaknesses can diminish investors' ability to constrain agency costs and allows managers to divert firm fungible resources, such as cash, for their private benefits or for undertaking sub-optimal investment projects.[1] Consistent with this contention, Cheng et al. (2013) find that firms with material weaknesses in internal control have less efficient investments. Further, Jensen (1993, p. 852) states that "with the shutdown of the capital markets as an effective mechanism for motivating change, renewal, and exit, I am left to depend on the internal control system to act to preserve organizational assets". In this study, I empirically investigate whether investors understand the implications of internal control weaknesses on firm fungible assets by examining whether investors discount the value of the firm's cash holdings in the presence of internal control weaknesses.

Cash holdings represent a significant source of future investment capital for firms, particularly when access to external capital is uncertain or costly (Opler et al. 1999; Kim et al. 1998; Denis and Sibilkov 2010). However, there are agency costs to free cash flow (Jensen, 1986; Harford, 1999; Dittmar and Mahrt-Smith 2007).[2] Myers and Rajan (1998) note that cash can be easily transformed into other assets or perquisites without easy identification by investors. Consistent with this notion, empirical studies find that when a firm is flush with cash, managers are able to use it for their own benefit, such as through lavish perquisites or empire-building (Harford, 1999; Dittmar et al., 2003; Kalcheva and Lins 2007). This free cash flow problem is amplified when external investors lack effective monitoring mechanisms to protect their interests (Harford et al. 2008). In anticipation of higher agency costs of free cash flows, investors discount the value of a firm's cash holdings (Pinkowitz et al. 2006; Dittmar and Mahrt-Smith, 2007). Given that internal control weaknesses reflect a more opaque internal (Lu et al., 2010) and external financial information environment (Chan et al., 2007; Doyle et al., 2007b; Ashbaugh-Skaife et al., 2008), shareholders should expect to see less value from firms' cash in the presence of internal control weaknesses because it is more difficult for outsiders to observe and curtail managers' opportunistic behavior or wasteful actions, such as the inefficient investment of internal funds (Biddle et al., 2009; Cheng et al., 2013). My paper contributes to the literature on the market's assessments of agency costs. Specifically Prior research views the disclosure of internal control weaknesses as a

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[1] Bushman and Smith (2001), in their review of the literature on financial accounting information and corporate governance, hypothesize that strong financial accounting information mitigates expropriation by managers. Thus, a more opaque information environment can lead to greater agency costs (or at least the expectation of greater agency costs).

[2] In addition to the agency costs of free cash flow, there is an opportunity cost to holding cash – cash held represents current investment opportunities foregone.

way for outside stakeholders to screen for firms with poor information quality and expects investors to react accordingly, either through a short-window reduction in stock price (Hammersley *et al.*, 2008) or through demanding a higher premium in providing capital such as higher cost of equity (Ashbaugh-Skaife *et al.*, 2009) or higher cost of debt (Dhaliwal *et al.*, 2011). I find that the presence of internal control weaknesses has a negative effect on the market's value of a firm's cash holdings. This finding supports the notion that investors use internal control weaknesses to revise their expectations of agency costs. My finding will be of interest to regulators, academics, and investors who are concerned about internal control weaknesses and their impact on shareholder wealth.

2. Prior Literature and Hypothesis Development

2.1 Prior research on material weaknesses in internal control

Internal control weaknesses indicate that there are severe problems in the system which generates the firm's accounting information. Considerable prior research examines the determinants of internal control weaknesses, including material weaknesses. Ashbaugh-Skaife *et al.* (2007) and Doyle et al. (2007b) find that internal control weakness firms have greater complexity, recent organizational change, higher audit risk, and more past restatements. Firms with internal control weaknesses also tend to have boards with less accounting financial expertise (Zhang *et al.*, 2007) and have higher audit fees, more modified opinions, and greater potential for auditor turnover (Elder *et al.*, 2008).

The presence of material weaknesses has a significant impact on a firm. Extant research primarily focuses on the impact of material weaknesses on a firm's information environment. Chan *et al.* (2007), Doyle *et al.* (2007a), and Ashbaugh-Skaife *et al.* (2008) find that material weaknesses lead to decreased accrual quality. Specifically, Ashbaugh-Skaife *et al.* (2008) document an increase in both positive and negative abnormal accruals when internal control weaknesses are present. They argue that the decline in earnings quality due to internal control weaknesses is driven primarily by an increase in unintentional errors. Goh (2009) strengthens the causal link between internal control weaknesses and accruals quality by showing an improvement in accruals quality upon the remediation of internal control weaknesses. In addition, Feng *et al.* (2009) find that internal control weaknesses also result in less accurate management forecasts, indicating a decline in the quality of the firm's internal information environment.

Other prior literature depart from studying the informational effect of material weaknesses and focus on potential agency cost implications of material weaknesses. Skaife *et al.* (2013) document that insider trading is more profitable at material weakness firms. They posit that managers at material weakness firms extract greater rents from the firm, resulting in greater agency costs. Consistent with Biddle *et al.* (2009) who document that firms with higher-quality financial reporting make more efficient investments, Cheng *et al.* (2013) find that firms with undisclosed material weaknesses make less efficient investments.

2.2 Linking material weaknesses to the valuation of cash

Bushman and Smith (2001), in their review of the accounting literature related to financial accounting information and corporate governance, discuss the importance of quality financial accounting information on economic performance. In particular, high quality financial accounting information provides a strong governance mechanism through enforcing discipline on managers

with respect to project selection and reduces expropriation of firm resources. When the quality of financial accounting information weakens, managers have less external discipline and can have greater freedom to maximize their own wealth through perquisites or suboptimal investments at the cost of the firm's shareholders. Thus, a more opaque information environment can increase agency costs, because external stakeholders are less able to observe and constrain managerial opportunistic behavior.

Researchers view firm cash holdings as "a promising opportunity to investigate the implications of agency theories" (Pinkowitz *et al*. 2006, p 2725). Jensen (1987) notes that free cash flow is particularly susceptible to agency cost when managerial incentives are not correctly aligned with shareholders. Harford (1999) provides evidence of the agency costs of free cash flow by showing that powerful managers take on value-decreasing acquisitions when large cash holdings are present. Core et al. (2006) find similar results in not-for-profit firms by showing greater agency problems when there are persistent high excess endowments. International evidence further demonstrates that firms located in countries with weaker shareholder protection hold higher levels of cash (Dittmar et al. 2003). Kalcheva and Lins (2007) expand further on this finding by showing that firms with large cash holdings tend to have lower value, but that their value is improved upon releasing some of this cash to shareholders through dividends.

Faulkender and Wang (2006) measure the asset-specific value of a firm's cash holdings and find that the value of cash is decreasing with the amount of cash held. They also find that the value of cash decreases in firms with greater leverage, but increases when firms are financially constrained. Dittmar and Mahrt-Smith (2007) demonstrate that the value of cash is significantly less when corporate governance is weak and that managers in weak governance firms use cash in ways that are less beneficial to stockholders. The authors posit that investors include expectations of agency costs when valuing a firm's cash holdings. Similarly, Masulis *et al*. (2009) find that when insider voting rights and cash flow rights diverge, the value of cash is lower and agency costs are higher. There is also international evidence of agency costs being embedded in the value of cash holdings. Pinkowitz *et al*. (2006) find that investors value cash less in countries where shareholder protection is weak and Schauten *et al*. (2011) also show that stronger corporate governance results in an increase in the market value of a firm's excess cash in common and civil law countries.

2.3 Hypothesis development

Given that material weaknesses increase information asymmetry (Rughunandan and Rama 2006; Ashbaugh-Skaife 2008; Lu *et al*. 2011), shareholders have less information about the firm's operations and are, therefore, less able to constrain managerial rent extraction (Skaife *et al*. 2013) or pressure managers to improve investment decisions (Cheng *et al*., 2013). Accordingly, shareholders discount the firm's cash holdings under the expectation that assets will be squandered or expropriated by errant managers. This leads to my hypothesis, stated in the alternative form:

> H1: *Investors increase their expectations of agency costs in the presence of material weaknesses.*

3. Sample and Research Design

3.1 Sample

I gather data on internal control weaknesses from the Audit Analytics SOX 404 Internal Controls database. Since SOX 404 opinions on internal control first began in 2004, my sample begins in

2004 and includes all available firm-year observations through the end of 2013. For supplementary tests, I also collect data on significant deficiencies from the Audit Analytics database. To estimate the value of a firm's cash holdings, I gather financial statement data from Compustat, stock returns from the Center for Research in Securities Prices (CRSP), and Fama and French portfolio benchmarks and returns from Kenneth R. French's web page.[3] I gather corporate governance data for supplementary tests from the Risk Metrics Governance Legacy database for observations with fiscal years ending from 2004 through 2006 and the Risk Metrics Governance database for observations with fiscal years ending from 2007 through 2014.

Consistent with Faulkender and Wang (2006) and Dittmar and Mahrt-Smith (2007), I exclude all financial and utility firms, corresponding to firms with SIC codes between 6,000 and 6,999 and between 4,000 and 4,949, respectively. Following Dittmar and Mahrt-Smith (2007), I winsorize all data other than returns and material weaknesses at the 1% and 99% level in order to reduce the impact of outliers.

3.2. Research design

To test whether investors revise their expectations of agency costs in the presence of internal weaknesses I analyze the effect of material weaknesses on the value of firm cash holdings. Following Faulkender and Wang (2006), I estimate the following model using ordinary least squares (OLS) and standard errors clustered by firm:

$$r_{i,t} - R^{B}_{i,t} = \beta_0 + \beta_1 MW_{i,t-1} + \beta_2 MW_{i,t-1}*\Delta C_{i,t} + \beta_3 \Delta C_{i,t} + \beta_4 \Delta E_{i,t} + \beta_5 \Delta NA_{i,t} + \beta_6 \Delta RD_{i,t} + \beta_7 \Delta I_{i,t}$$
$$+ \beta_8 \Delta D_{i,t} + \beta_9 C_{i,t-1} + \beta_{10} L_{i,t} + \beta_{11} NF_{i,t} + \beta_{12} C_{i,t-1}*\Delta C_{i,t} + \beta_{13} L_{i,t-1}*\Delta C_{i,t} + \varepsilon_{i,t} \qquad (1)$$

where ΔX indicates the change in X from fiscal year t-1 to t, i indicates firm and t indicates fiscal year. Table 1 (next page) provides detailed variable definitions:

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[3] This data can be found at http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

Table I. Variable Definitions.

This table describes the variables used in the study and their source database.

Variable	Description	Database Reference Code	Source
r	Annualized stock return	RET	Center for Research in Stock Prices
R^B	Fama and French (1993) portfolio return matched on size and book to market		Kenneth French's web page
M	Market value of equity	PRCC_F*CSHO	Compustat
C	Cash and cash equivalents	CHE	Compustat
E	Earnings	IB+XINT+TXDI+ITCI	Compustat
NA	Net assets	AT-CHE	Compustat
RD	Research and development expenses, set to 0 if missing.	XRD	Compustat
I	Interest expense	XINT	Compustat
D	Common dividends	DVC	Compustat
L	Leverage	(DLTT+DLC)/(DLTT+DLTT+ PRCC_F*CSHO)	Compustat
NF	Net financing	SSTK-PRSTKC+DLTIS-DLTR	Compustat
MW	Material weakness (Binary)	1 if the firm discloses at least one material weakness, 0 otherwise.	Audit Analytics

My dependent variable is the excess stock return for firm i in year t, defined as the annual stock return (r) minus the annual benchmark portfolio return (R^B) for firm i. Following Fama and French (1993), I match firm returns to benchmark portfolio returns by size and book-to-market ratio. MW represents my measure of internal control weaknesses. Specifically, I use material weaknesses in internal control because these represent weaknesses with a substantial impact over the firm's internal controls. I measure material weaknesses both as a binary variable, equaling one if at least one material weakness is disclosed for the period t-1, zero otherwise (MW(Binary)) and as the count of material weaknesses disclosed during the period t-1. Because the count of material weaknesses is skewed, I take the natural logarithm of the count of material weaknesses plus one (MW(Count)). The variable of interest is β_2, the coefficient of the interaction between material weaknesses and the change in cash holdings, which represents the incremental change in the market value of a dollar change in firm cash holdings conditional on internal weaknesses. To the extent that material weaknesses result in increased expectations of agency costs, I expect the coefficient β_2 to be negative and significant.

The control variables are the same as in Faulkender and Wang (2006) and Dittmar and Mahrt-Smith (2007) and control for firm-specific characteristics that affect returns and cash holdings. Specifically, I include changes in earnings to account for profitability (ΔE), changes in total assets net of cash (hereafter, 'net assets') and research and development expenditure to account for internal investment (ΔNA and ΔRD), and changes in interest expense and dividends, leverage, and

net financing to account for changes in financing and capital strategy (ΔI, ΔD, L and NF), all deflated by the firm's market value (M) in t-1 to control for size.

4. Empirical Results

Table II (below) presents summary statistics for my full of 7,594 observations. In my sample, the mean and median excess return is 0.0408 and -0.0412, respectively, indicating a slight positive skew in the data. Across all firms in my sample, the average change in cash is positive for my sample period. This indicates that the firms in my sample, on average, tend to increase cash holdings from one year to the next. This is consistent with findings by Dittmar and Mahrt-Smith (2007) and other related research, which show that firms have steadily increased their cash holdings over time. Earnings, net assets, research and development, and interest expense have also, on average, a positive yearly change for my sample period. However, the average change in dividends is zero, indicating general stickiness in dividend policy. Lagged cash is approximately 18% of assets, which is similar to the 22% of assets found by Dittmar and Mahrt-Smith (2007). Average leverage for firms is approximately 20% across my entire sample. Finally, approximately 7.46% of the firm-year observations in my samples have at least one disclosed material weakness, which is similar to the sample used by Dhaliwal et al. (2011).

Table II. Descriptive Statistics.						
This table presents descriptive statistics for the variables used in our analyses.						
Variable	**N**	**Mean**	**Median**	**Std. Dev.**	**1Q**	**3Q**
Panel A: Dependent Variable						
$r_{i,t} - R^B_{i,t}$	7,594	0.0408	-0.0412	0.6835	-0.2538	0.1922
Panel B: Internal Control Weakness Variables						
$MW_{i,t-1}$ (Binary)	7,594	0.0746	0.0000	0.2627	0.0000	0.0000
$MW_{i,t-1}$ (Count)	7,594	0.1525	0.0000	0.7029	0.0000	0.0000
Panel C: Control Variables						
$\Delta C_{i,t}$	7,594	0.0092	0.0017	0.1346	-0.0278	0.0365
$\Delta E_{i,t}$	7,594	0.0164	0.0050	0.2289	-0.0251	0.0348
$\Delta NA_{i,t}$	7,594	0.0312	0.0251	0.4010	-0.0342	0.1066
$\Delta RD_{i,t}$	7,594	0.0003	0.0000	0.0146	0.0000	0.0009
$\Delta I_{i,t}$	7,594	0.0008	0.0000	0.0222	-0.0012	0.0021
$\Delta D_{i,t}$	7,594	0.0004	0.0000	0.0142	0.0000	0.0011
$C_{i,t-1}$	7,594	0.1834	0.1031	0.2483	0.0409	0.2238
$L_{i,t}$	7,594	0.1963	0.1383	0.2080	0.0175	0.2971
$NF_{i,t}$	7,594	0.0220	-0.0015	0.2047	-0.0383	0.0287

Table III (below) presents results from estimating my primary multivariate regression model, equation (1), in which I test the effect of material weaknesses on the value of a firm's cash holdings. Recall that the variable of interest is the interaction between the change in cash holdings and material weaknesses. Consistent with my expectations, the coefficient β_2 is negative and significant when measuring material weaknesses both as a binary and as a count variable, meaning that the market values firms' cash holdings less in the presence of internal control weaknesses. My finding is consistent with the notion that outside stakeholders expect intensified agency costs

as a result of internal control weaknesses and discount firms' cash holdings accordingly.

Table III. The Impact of Internal Control Weaknesses on the Value of Cash Holdings.

This table presents the results of our primary empirical model, estimated using OLS with firm clustered standard errors. All non-material weakness and returns variables are divided by net assets and winsorized at the 1 and 99 percent levels. Variable definitions are included in Table I. *, **, and *** indicate significance at the 10%, 5%, and 1% significance level (one-tailed test for variables with a directional prediction, two-tailed tests otherwise), respectively. P-values are in parentheses. Column (1) includes the binary material weakness variable, whereas column (2) includes the count material weakness variable.

	Dependent Variable: $r_{i,t} - R^B_{i,t}$	
Material Weakness Variables:	(1) MW (Binary)	(2) MW (Count)
$MW_{i,t-1}$	-0.0472	-0.0383
	(0.1577)	(0.2617)
$MW_{i,t-1}*\Delta C_{i,t}$	-1.3481**	-0.883**
	(0.0135)	(0.0209)
Control Variables:		
$\Delta C_{i,t}$	1.2078***	1.1525***
	(<.0001)	(0.0002)
$\Delta E_{i,t}$	0.6657***	0.6739***
	(<.0001)	(<.0001)
$\Delta NA_{i,t}$	0.0695	0.064
	(0.3129)	(0.3648)
$\Delta RD_{i,t}$	0.5235	0.545
	(0.665)	(0.6536)
$\Delta I_{i,t}$	-1.3864	-1.3568
	(0.166)	(0.175)
$\Delta D_{i,t}$	1.0536**	1.105**
	(0.0378)	(0.0311)
$C_{i,t-1}$	0.5395***	0.5334***
	(<.0001)	(<.0001)
$L_{i,t}$	-0.2964***	-0.2985***
	(<.0001)	(<.0001)
$NF_{i,t}$	0.032	0.0379
	(0.7488)	(0.7094)
$C_{i,t-1}*\Delta C_{i,t}$	-0.003*	-0.0029*
	(0.0428)	(0.0542)
$L_{i,t}*\Delta C_{i,t}$	1.3737*	1.3466*
	(0.0428)	(0.0544)
Intercept	-0.0226	-0.0215
	(0.2342)	(0.2738)
Industry Fixed Effects	Included	Included
Year Fixed Effects	Included	Included
Adj. R-Squared	0.3007	0.2984
Firm-Year Observations	7,594	7,594

To gauge the economic significance of the effect of material weaknesses on cash valuation, I find that the marginal value of $1 additional cash is worth approximately $1.48 for firms with no material weaknesses in internal control, similar in magnitude to the finding by Dittmar and Mahrt Smith (2007) that the marginal value of $1 additional cash is worth approximately $1.62 in well-governed firms.[4] Alternatively, the marginal value of $1 additional cash is worth approximately $0.13 for firms with material weaknesses, which is dramatically smaller in magnitude then the finding by Dittmar and Mahrt-Smith (2007) that the marginal value of $1 additional cash is worth approximately $0.60 for firms with poor governance. Therefore, my results indicate that the effect of material weaknesses on cash valuation is not only statistically but also economically significant, and greater than other effects documented by prior research.

The estimates of the parameters of my control variables are generally consistent with prior research (Faulkender and Wang, 2006; Dittmar and Mahrt-Smith, 2007). An increase in the amount of cash (ΔC) has a statistically positive relation with the excess return, as does earnings (ΔE). In addition, holding more cash in the prior period ($C_{i,t-1}$) has a positive impact on the firm's relative stock performance, whereas higher leverage (L) has a negative impact. Also consistent with previous studies (Faulkender and Wang, 2006; Dittmar and Mahrt-Smith, 2007), a greater amount of cash in the prior period has a negative impact on the current value of a firm's cash ($C_{i,t-1}*\Delta C_{i,t}$). Contrary to prior research, the coefficient on the interaction of leverage and the change in cash is positive and significant. However, upon undertaking supplementary analyses (untabulated), it appears that this difference in my estimate of the effect of leverage on the value of cash derives from differences in sample period and data coverage.

5. Supplementary Tests

In this section, I document the results of several supplementary tests to support the conclusions from my main analyses. First, I examine whether the market is able to differentiate the severity of internal control weaknesses when discounting firms' cash holdings in the presence of internal control weakness. I do so by including in my multivariate regression an additional set of variables for significant deficiencies in internal control. Hammersley et al. (2008) find that a firm experiences a significant negative short-window stock reaction when a significant deficiency is disclosed. However, this reaction is less than when a material weakness is announced (Hammersley et al., 2008). In addition, the disclosure of significant deficiencies is subject to management discretion, unlike material weakness disclosures by auditors (Doyle et al., 2007a; Doyle et al., 2007b). Accordingly, firms that voluntarily disclose a significant deficiency are unlikely to have serious agency costs. In order to test the effect of significant deficiencies on the value of cash holdings, we expand our primary regression model to include significant deficiencies. This acts as a natural falsification test to ensure that our results are not driven by any disclosure about internal controls. I present regression results when including significant deficiencies and interacting the significant deficiency variable with the change in cash variable in order to examine the effect on the market's valuation of cash holdings below in Table IV:

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[4] Following Dittmar and Mahrt-Smith (2007) and Faulkender and Wang (2006) I calculate the marginal value of $1 additional cash as the coefficient on the change in cash plus the coefficients of the interaction variables (lagged cash and leverage, respective) times the mean value of the level variables in the interaction.

Table IV. The Impact of Material Weaknesses and Significant Deficiencies on the Value of Cash Holdings

This table presents the results of including significant deficiencies in equation (1) and is estimated using OLS with standard errors clustered by firm. Variable definitions are included in Table I. *, **, and *** indicate significance at the 10%, 5%, and 1% significance level (one-tailed test for variables with a directional prediction, two-tailed tests otherwise), respectively. P-values are in parentheses. Column (1) includes the binary internal control weakness variables, whereas column (2) includes the count internal control weakness variables.

	Dependent Variable: $r_{i,t} - R^{B}_{i,t}$	
Internal Control Weakness Variables:	(1) MW or SD (Binary)	(2) MW or SD (Count)
$MW_{i,t-1}$	-0.0519	-0.0412
	(0.1232)	(0.2301)
$MW_{i,t-1}*\Delta C_{i,t}$	-1.3310**	-0.8820**
	(0.0140)	(0.0215)
$SD_{i,t-1}$	0.0320*	0.0293*
	(0.0713)	(0.0761)
$SD_{i,t-1}*\Delta C_{i,t}$	-0.6078	-0.5272
	(0.1525)	(0.1580)
Control Variables:		
$\Delta C_{i,t}$	1.2795***	1.2148***
	(<.0001)	(<.0001)
$\Delta E_{i,t}$	0.6585***	0.6691***
	(<.0001)	(<.0001)
$\Delta NA_{i,t}$	0.0713	0.0664
	(0.2982)	(0.3466)
$\Delta RD_{i,t}$	0.5006	0.5180
	(0.681)	(0.6727)
$\Delta I_{i,t}$	-1.3194	-1.3193
	(0.1889)	(0.189)
$\Delta D_{i,t}$	1.0909**	1.1470**
	(0.0309)	(0.0254)
$C_{i,t-1}$	0.5447***	0.5378***
	(<.0001)	(<.0001)
$L_{i,t}$	-0.3058***	-0.3064***
	(<.0001)	(<.0001)
$NF_{i,t}$	0.0359	0.0403
	(0.7181)	(0.6916)
$C_{i,t-1}*\Delta C_{i,t}$	-0.0030**	-0.0029*
	(0.0345)	(0.047)
$L_{i,t}*\Delta C_{i,t}$	1.3997**	1.3645*
	(0.0347)	(0.0472)
Industry Fixed Effects	Included	Included
Year Fixed Effects	Included	Included
Intercept	-0.0259	-0.0246
	(0.1761)	(0.2131)
Adj. R-Squared	0.2532	0.2492
Firm-Year Observations	7,594	7,594

Columns (1) and (2) differ in terms of how MW and SD are measured. Consistent with my expectations, the coefficient β_2 is negative and significant in both Columns (1) and (2), but the coefficient β_4 is not significantly different from zero in either column. The insignificance of β_4 lends support to the contention that deficiencies in internal control are less severe than material weaknesses and will not lead shareholders to revise their opinion of the firm's agency costs. In an additional test, I exclude material weaknesses and its interaction from equation (2) (untabulated). In this case, the coefficients on significant deficiencies and the interaction of significant deficiencies and the change in cash are not significantly different from zero. Taken together, these results suggest that the market is able to identify the severity of internal control weaknesses and discounts firms' cash holdings only when internal control weaknesses indicate a widespread failure of internal control.

Next, I consider whether strong corporate governance attenuates the effect of internal control weaknesses on the market's valuation of cash holdings. Specifically, a lack of governance structures could magnify the effect of material weaknesses on the value of cash since shareholders have fewer alternative options to reduce opportunistic behavior and inefficient investment by managers. Conversely, the presence of strong shareholder protection should attenuate the effect of material weaknesses on agency costs and hence mitigate the discount investors assign to cash valuation. For example, Ferreira and Matos (2008) find stronger corporate governance by institutional investors mitigate overinvestment. Thus, if strong alternative governance mechanisms are present, investors will not reduce the valuation of cash for fear of opportunistic behavior and inefficient investment by managers. However, if there are no strong alternative governance mechanisms investors will be forced to discount the value of the company's cash. I measure the strength of corporate governance using the EIndex developed by Bebchuk *et al.* (2009). I present regression results of splitting my sample into strong corporate governance and weak corporate governance firms in Table V (next page).

In the subsample of firms with strong corporate governance β_2 is no longer statistically significant from zero. Accordingly, the impact of material weaknesses on investors' expectations of agency costs is insignificant when corporate governance is strong. However, in the subsample of firms with weak corporate governance, β_2 is significantly negative. This result supports my expectation that firms with strong corporate governance have other mechanisms in place to influence management. Therefore, shareholders in firms with strong corporate governance are not as concerned with potentially higher agency costs in the presence of material weaknesses, since they are better able to constrain management from diverting firm cash for their private benefits. Alternatively, shareholders in weak governance firms have fewer options to minimize agency costs as a result of material weaknesses, which results in a greater discount on firm cash holdings.

Table V. The Attenuating Effect of Strong Corporate Governance

This table presents the results of my primary empirical model, estimated using OLS with standard errors clustered by firm. Variable definitions are included in Appendix A. *, **, and *** indicate significance at the 10%, 5%, and 1% significance level (one-tailed test for variables with a directional prediction, two-tailed tests otherwise), respectively. P-values are in parentheses. Columns (1) and (3) include the binary material weakness variable, whereas columns (2) and (4) include the count material weakness variable. Strong Corporate Governance firms have an EIndex of three or less, whereas Weak Corporate Governance firms have an EIndex of four or higher.

Dependent variable: $r_{i,t} - R^B_{i,t}$

Internal Control Weakness Variables:	Strong Corporate Governance		Weak Corporate Governance	
	(1) MW (Binary)	(2) MW (Count)	(3) MW (Binary)	(4) MW (Count)
$MW_{i,t}$	-0.0337	-0.0282	0.0221	0.0329
	(0.3071)	(0.2704)	(0.5909)	(0.4712)
$MW_{i,t}*C_{i,t}$	0.4260	0.4310	-2.0726**	-2.2959**
	(0.2217)	(0.1848)	(0.0101)	(0.0290)
Control Variables:				
$EIndex_{i,t}*MW_{it-1}$	-0.0006	-0.0006	0.0192*	0.0188*
	(0.922)	(0.9199)	(0.0695)	(0.0745)
$EIndex*Chg. Cash$	-0.0996	-0.1072	-0.6406**	-0.677**
	(0.4621)	(0.4492)	(0.0276)	(0.0263)
$\Delta C_{i,t}$	1.5103***	1.5271***	5.1423***	5.2868***
	(<.0001)	(<.0001)	(0.0005)	(0.0006)
$\Delta E_{i,t}$	0.6934***	0.6921***	0.5302***	0.5271***
	(<.0001)	(<.0001)	(<.0001)	(<.0001)
$\Delta NA_{i,t}$	0.029	0.027	0.172**	0.171**
	(0.6220)	(0.6617)	(0.0066)	(0.0069)
$\Delta RD_{i,t}$	-0.1733	-0.1602	-5.477*	-5.3425
	(0.8851)	(0.8947)	(0.0807)	(0.0899)
$\Delta I_{i,t}$	-2.6217**	-2.6061**	-0.451	-0.4453
	(0.0329)	(0.034)	(0.8147)	(0.8176)
$\Delta D_{i,t}$	1.0219	1.0113	0.3183	0.3508
	(0.0956)	(0.1070)	(0.7223)	(0.6978)
$C_{i,t-1}$	0.3071***	0.3078***	0.3149***	0.3216***
	(<.0001)	(<.0001)	(0.0011)	(0.001)
$L_{i,t}$	-0.2745***	-0.2738***	-0.2591***	-0.2605***
	(<.0001)	(<.0001)	(<.0001)	(<.0001)
$NF_{i,t}$	0.2476	0.254	-0.2772	-0.277
	(0.1585)	(0.1596)	(0.0958)	(0.0954)
$C_{i,t-1}* \Delta C_{i,t}$	0.2294*	0.2339*	0.1577	0.1585
	(0.0577)	(0.0531)	(0.2431)	(0.2445)
$L_{i,t}*\Delta C_{i,t}$	-1.0913	-1.0985	-2.9119***	-2.8919***
	(0.1036)	(0.103)	(0.0011)	(0.0012)
Intercept	0.0165	0.0161	-0.0783	-0.0768
	(0.3916)	(0.4053)	(0.1435)	(0.1505)
Industry Fixed Effects	Included	Included	Included	Included
Year Fixed Effects	Included	Included	Included	Included
Adj. R-Squared	0.2638	0.2637	0.2285	0.2264
Observations	2,799	2,799	1,498	1,498

6. Conclusion

In this paper, I examine how material weaknesses affect investors' expectation of whether they can constrain opportunistic behavior and inefficient investment by management. I find that the market's valuation of a firm's cash holdings declines significantly when a firm has material weaknesses. I also find that the market's value of a firm's cash holdings does not change in the presence of significant deficiencies or account-level material weaknesses. Furthermore, I find that the adverse effect of material weaknesses on cash valuation is mitigated in firms with strong corporate governance. My results suggest that material weaknesses indicate to shareholders that agency costs are amplified in these firms as a result of greater information asymmetry between managers and investors. As such, shareholders are less able to constrain agency costs and hence discount the value of the firm's cash holdings. Further, I find that firms with material weaknesses do not substantially change their level of cash holdings or their investment in research and development or acquisitions. Firms with material weaknesses increase dividends, but this effect is attenuated by weak corporate governance. Finally, I find firms with material weaknesses are also significantly less profitable in the following year.

My paper contributes to our understanding of the governance role played by financial accounting information (Bushman and Smith, 2001). Theory suggests that low quality financial information weakens the ability for outside parties to control agency costs. The empirical evidence in the study supports this notion by showing that material weaknesses lead to a decreased valuation of a firm's cash holdings. This decreased valuation suggests that investors are concerned about increased agency costs, such as cash diversion for managers' private consumption and suboptimal investment, in firms with material weaknesses.

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