

THE INFORMATION CONTENT OF DISCLOSURE CONTROLS AND PROCEDURES DEFICIENCIES

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Section 302 of the Sarbanes-Oxley Act of 2002 requires public companies to report quarterly about the effectiveness of disclosure controls and procedures. These disclosure controls and procedures are different from internal control over financial reporting required to be audited and reported on under Section 404 of the same act. This study finds that the market generally does not react to the management's reports on the effectiveness of the disclosures controls and procedures except in the case of non-accelerated filers. The study provides evidence that the reason for the lack of the market reaction is not the richness of the accelerated filers' information environment as suggested by prior research; rather, it is because of the reliance of the investors on the assurance provided by the external auditor. The study also demonstrates that auditors reporting on internal control take into consideration the management's report on deficiencies in the disclosure controls and procedures.

Introduction

The Sarbanes Oxley Act was passed in July of 2002 (U.S. Congress [2002]). The Act has significant new requirements for public companies; these requirements are salient in the areas of internal control over financial reporting and disclosure. Two of the Act's sections, 302 and 404, relate to the reliability of internal control. Section 404, effective on November 15, 2004, requires filers to report on their internal control indicating their responsibility to establish and maintain such controls and to assess their effectiveness (Section 404(a)(1) and (a)(2)). It also requires the external auditor to audit and report on the client's internal control effectiveness (Section 404(b)). On the other hand, Section 302, effective August 29, 2002, requires that filers' principal officers certify quarterly and annually that officers have reviewed the reports, that the reports do not contain untrue, misleading or omitted statements, that the financial statements included in the reports are fairly presented, that the officers are responsible for establishing and maintaining internal controls, that such internal controls to ensure that material information is made known to such officers, that the officers evaluated and reported on the effectiveness of internal controls, and that the officers have reported any fraud and changes in the internal controls.

The focus of this study is Section 302(a)(4)(b) of the Act requiring that the officers design internal controls to ensure that material information is made known to them. These controls are called "disclosure controls and procedures" (DCP). The Security and Exchange Commission (SEC) differentiates between DCP and internal control over financial reporting (ICFR). In its final rule effective 8/29/2002, the SEC defines DCP as "controls and procedures designed to ensure that information required to be disclosed by an issuer in its Exchange Act reports is accumulated and communicated to the issuer's management, including its principal executive and financial officers, as appropriate to allow timely decisions regarding required disclosure." This concept is differentiated from the pre-existing concept of "internal control over financial reporting" (ICFR) that pertains to an issuer's financial reporting and control of its assets. ICFR is defined as "a process—effected by an entity's board of directors, management, other personnel—designed to provide reasonable assurance regarding the achievement of

objectives in the following categories: (a) reliability of financial reporting, (b) effectiveness and efficiency of operations and (c) compliance with applicable laws and regulations." The SEC acknowledges that "there is a substantial overlap" between a filer's DCP and its ICFR. The SEC, however, indicates that some elements are not shared by ICFR and DCP but are specific to one or the other. For example, the SEC uses parts (b) and (c) of the ICFR's definition, referring to the efficiency and effectiveness of operation and compliance with laws and regulation, as examples of elements in the ICFR that are not included within the definition of the DCP. Another example is requiring dual signature as a part of ICFR but not as a part of DCP (SEC, 2003).

Weirich and Olsen (2016) indicate that despite the high frequency in the reported DCP deficiencies (up to 33% of the observations in a single year), very little has been reported on the topic of DCP. Hammersley et al. (2008) indicate that the DCP-required disclosures are intended by policy-makers to provide early warnings about potential financial statements problems. The purpose of this study is to examine the information content of DCP deficiency disclosures required under SOX Section 302. I use data from Audit Analytics, Compustat, and CRSP over the period 2004 – 2015 and conduct an event study over three-day window surrounding the 10-Q and 10-K disclosure dates to measure differences in market reaction to the following: disclosure of a DCP deficiency, severity of deficiency (i.e., whether the management classifies it as significant deficiency versus material weakness), and the number of DCP deficiencies in the report. The study also examines whether the market reacts differently to auditors' reports on internal control subsequent to these DCP deficiency disclosures. In addition, it investigates whether the market reaction to these disclosures differs if the disclosing entity is a non-accelerated filer, i.e., one that is not required to comply with SOX 404 and therefore does not need an external auditor's opinion on its ICFR. Finally, the study examines whether the external auditor takes into consideration these disclosures when issuing an opinion on the client's ICFR.

Upon reviewing a sample of quarterly and annual reports that disclose DCP deficiencies, it was apparent that the management's interim and annual disclosures do not clarify the distinction between DCP and ICFR. Sometimes management's references to ineffective DCP are followed by a list of deficiencies that clearly relate to ICFR, such as segregation of duties, safeguarding the assets, information and communication, etc. Other times, ineffective ICFR is given as the reason to declare the DCP ineffective also. In this paper, this ambiguity and lack of clear distinction in the management disclosure is argued to have an effect on the lack of market reaction to disclosures of DCP deficiencies in the reports of accelerated filers.

The results show that the market does not react to disclosures of DCP deficiencies, the number of reported DCP deficiencies, or their severity, except when the disclosing entity is a non-accelerated filer that is not required to comply with SOX 404 and whose internal control is therefore not audited by an external auditor. The results also contradict prior research that suggests that the lack of information content of DCP disclosures by accelerated filers is due to richness of accelerated filers' information environment. Rather, the investors find it difficult to differentiate between DCP and ICFR disclosures because of the often-ambiguous management reports on the DCP, and as a result they prefer to rely on the assurance provided by the external auditor (as long as that assurance exists—i.e., in the case of accelerated filers). In the case of non-accelerated filers, for whom this assurance is not provided, the investors turn to the management disclosure on internal control-related issues which they use to assess future risk of possible financial reporting irregularities. On the other hand, the results show that auditors take into consideration DCP disclosures when issuing an opinion on client ICFR. This study differs from prior research along several dimensions. First, it explicitly differentiates between SOX 404 and SOX 302 disclosures. Second, it uses more updated data on a longer time period. Finally, it is the first study—to the best of my knowledge—to provide empirical evidence explaining the lack of market reaction to DCP deficiencies disclosed by accelerated filers. The study also extends Beneish et al. (2008) in that it provides empirical evidence refuting their assumption about the lack of market reaction to DCP

deficiencies disclosed by accelerated filers. The study shows that this lack of response is not because of the rich information environment of these firms; rather, it is because of the encompassing effect of the independent auditor report on internal control required only for these filers.

Literature Review and Hypotheses Development

The research reviewed in this section shows the void that this paper is attempting to fill. Most of the research in this area either addresses SOX 404 disclosures, or does not differentiate between SOX 404 and SOX 302 disclosures. Further, it shows that none of the articles in this area empirically test the reason behind the lack of market reaction to SOX 302 disclosures.

Studies on section 404 disclosure

Very few articles focus only on SOX 302 disclosures; on the other hand, several articles address disclosures related either to SOX 404, or to both sections. For example, Dhaliwal et al. (2011) focus on ICFR and SOX 404 requirements. They remove firms that report SOX 302 control material weaknesses from their sample, and focus only on disclosures required under SOX 404. They find that the cost of debt increases after disclosing material weaknesses. Gordon and Wilford (2012) also address SOX 404 and reexamine the association between internal control material weaknesses and cost of equity. However, they focus on whether subsequent remediation of the internal control weaknesses, or-lack thereof, affects the cost of equity. They find that consecutive reporting of internal control material weaknesses has a progressively negative effect on the cost of equity, and they observe that the number and type of weaknesses explain the relation between those weaknesses and the cost of capital.

Also focusing on SOX 404-related issues, both Ashbaugh-Skaife et al. (2007) and Rice and Weber (2012) investigate factors that lead firms to discover and disclose internal control deficiencies. Ashbaugh-Skaife et al. (2007) find that firms with more complex operations, recent organizational changes, greater accounting risk, more auditor resignations, and fewer resources available for internal control are more likely to disclose internal control deficiencies. Rice and Weber (2012) find that reporting these deficiencies are more likely by entities with higher external capital needs, larger firm size, larger non-audit fees, and a larger audit firm. They also find that prior SEC enforcement actions and financial restatements, use of dominant audit firm, and a highly concentrated institutional ownership are factors providing incentives to discover and report internal control problems.

Studies on both section 404 and section 302

Some articles address disclosure under both SOX 404 and 302 without focusing much on the differences between the two. For example, Ashbaugh-Skaife et al. (2009) assess how changes in internal control quality affect firm risk and cost of equity. They consider all deficiencies reported under either SOX 302 or 404 requirements and use these disclosures as indicators of poor accounting information quality. They find that firms with deficiencies have higher risk and higher cost of capital. They also find that cost of capital decreases for firms that remediate previously disclosed deficiencies. Contrary to these results, Ogneva et al. (2007) do not find, on average, that internal control weaknesses are associated with the cost of capital.

In a study that addresses the relationship between SOX 404 and SOX 302 disclosures, Hermanson and Ye (2009) investigate the question of whether accelerated filers provide early warning of internal control material weaknesses in their SOX 302 disclosures. They study 451 cases of accelerated filers with adverse SOX 404 reports after its effective date, and find that only 27% of them provided early

warnings about the deficiencies during the year as required under SOX 302. Their results suggest that unless an external auditor is involved in testing and reporting on the effectiveness of internal control, most investors will not receive reliable information about controls from management under SOX 302. A limitation of this study is the restricted scope of the period surrounding the implementation of SOX 404.

Both Kenny and Shepardson (2011) and Lu et al. (2011) address the cost-benefit of SOX 404 and 302. Kenny and Shepardson (2011) consider the relative performance and cost of the alternative internal control disclosures mechanisms under SOX 404 and 302. Considering that the cost of compliance with SOX 404(b)—which requires external audit opinion on the effectiveness of internal control—was a concern that resulted in postponing the implementation of this requirement for non-accelerated filers for several years until it was waived under Dodd-Frank Act of 2010. Their results support the view that, for smaller firms, management's reporting on internal control in addition to financial statements auditing might be a cost effective alternative to complying with the internal control external audit required under SOX 404(b). Lu et al. (2011) examine whether the low-cost Canadian internal control disclosure approach that neither requires control-related disclosures to be certified by the management nor audited by the external auditor. They find an association between the disclosure and discretionary accruals, indicating the effectiveness of the lower cost approach.

Several studies examine the effect of internal control deficiencies on reporting or accrual quality and they reach similar conclusions that there is a positive association between reporting deficiencies and lower reporting or accrual quality (e.g., Ashbaugh-Skaife et al. 2008; Myllymaki 2014; Doyle et al. 2007; Chan et al. 2008). All of them also are similar in not distinguishing between the types of the control reported on by SOX 404 versus SOX 302.

Studies on section 302

On the other hand, few articles address the requirements, the usefulness, and the results of Section 302 disclosures. Like Ashbaugh-Skaife et al. (2007) and Rice and Weber (2012), Ge and McVay (2005) study the characteristics of firms reporting material weaknesses. It is an early study that focused on only SOX 302 because of its early implementation. The authors find that the reported weaknesses are associated with insufficient resources committed for accounting control, deficient revenue recognition, separation of duty, period-end reporting, and account reconciliation policies.

Hammersley et al. (2008) examine the market reaction to SOX 302 disclosures and to the characteristics of these disclosures. They find that the market reacts negatively to these disclosures, and the level of the market's negative reaction is in proportion to the level of the weakness severity. The authors also observe that the market reacts less negatively when the management concludes in its disclosure that the internal control is effective. However, the reaction is more negative when the weaknesses are less auditable and related disclosures are vague. Beneish et al. (2008) also investigate the disclosure effect of internal control deficiencies on the cost of capital and the effect of those disclosures on stock returns. They separate disclosures under SOX 302 from those under SOX 404. They find that firms making disclosures under SOX 302 experience an increase in the cost of capital and a negative abnormal return associated with the these disclosures, while firms making SOX 404 disclosures experience no such results. The authors explain that the lack of market response to SOX 404 disclosures is consistent with the hypothesis that accelerated filers, required to comply with SOX 404, operate in richer information environments. This richer information environment hypothesis also explain the significantly less negative return experienced by accelerated filers with SOX 302 disclosure, compared to non-accelerated filers. They also find that auditor quality attenuates the market response to SOX 302 disclosures. They argue that a specific objective of these two sections is to signal internal control weaknesses and possible lower quality of financial reporting to investors.

The research reviewed above leads to few conclusions. First, the majority of articles either focuses on SOX 404 disclosures or does not differentiate between SOX 404 and 302 disclosures, i.e., both disclosures are treated as disclosures related to ICFR. Second, few articles focus on SOX 302, and even fewer—Hammersley et al. (2008) and Beneish et al. (2008)—examine the market reaction to management’s disclosure required under this section. These two articles conclude that the market reacts negatively to these disclosures; however, both articles have some limitations. Hammersley et al. (2008) examine a sample over a very short period of time prior to the effective date of SOX 404, from November 2003 to January 2005. This limited period does not allow testing the market reaction to the auditor report on ICFR required under SOX 404. Also, it does not show that the authors differentiate between the ICFR and DCP. A similar limitation exists in Beneish et al. (2008), who do not even mention the expression “disclosure controls and procedures” a single time to differentiate it from “internal control over financial reporting.”

Based on reviewing many 10-Q and 10-K reports, I noticed that the SOX 302 disclosure is often not clear. In many cases, a report would indicate that the DCP is not effective, and then provide a list of ICFR deficiencies. Therefore, I expect that that disclosure will not be used by the market as long as there is an external auditor report. In the case of the absence of this report, i.e., for non-accelerated filers, an investor will not find another way to get information about the internal control except from the management required disclosure under SOX 302. If this assumption is true, then the “richness” of the information environment surrounding a certain accelerated filer will not make a difference on the investor decision whether to rely on SOX 302 disclosures.

Therefore, because of the ambiguous disclosures made by public companies, I expect that the market will not generally react to SOX 302 disclosures, and I test this hypothesis:

H1a: The market does not react to DCP deficiencies disclosures.

Filers that report ineffective DCP often list the DCP deficiencies. Audit Analytics classifies these into four categories, accounting rule (GAAP_FASB) application failures, financial fraud irregularities and misrepresentations, errors in accounting and clerical applications, and other disclosure control weakness. These reported deficiencies are mostly descriptive of internal control over financial reporting deficiency, such as separation of duties, software access and securities, fraud risk program/ assessment/ management, ethics code issues, governance issues, etc. Even though Gordon and Wilford (2012) find that the number of the reported deficiencies affects the cost of capital; I expect that most of the time, investors will find the reported deficiencies related to ICFR. Therefore, they will rely on the external auditor report, as long as it exists, rather than on the management’s disclosures and disregard the number of reported deficiencies. Therefore, I postulate the following hypothesis to test this expectation:

H1b: The number of reported DCP deficiencies does not affect the market reaction to the disclosures.

Hammersley et al. (2008) find that the severity of the deficiencies, i.e., whether they are reported as significant or material, has an effect on the market reaction to the disclosures. However, as mentioned above, the limitations of their study lead me to believe that the market was responding to deficiencies in the ICFR not to deficiencies in the DCP. Therefore, I do not expect that the severity reported by the management will be considered by the users of the report as long as there will be an assessment and assurance by the external auditor. I test the following hypothesis.

H1c: The severity of the reported DCP does not affect the market reaction to disclosures.

As discussed in the literature review above, Hermanson and Ye (2009) suggest that the external auditor appears to play an important role in providing an early warning of control-related deficiencies. Their results suggest that unless an external auditor is involved in reporting on the effectiveness of the internal control, as in the case of accelerated filers, most investors will not receive reliable information about controls from management's reports under Section 302. I expect that the market will not respond to SOX 302 disclosures when an external auditor report is available. My reasoning is that the users of the management's report, quarterly or annually, will not rely on its information because of (a) the overlap between the requirements of SOX 404 and 302, (b) the unclear distinction between the ICFR and DCP, and (c) the often ambiguous way most of these reports are written. Instead, investors will likely rely on the assurance of the external auditor if applicable, i.e., in the case of accelerated filers who are subject to audit of their internal control as a requirement of SOX 404(b). However, since investors in non-accelerated filers generally have no source of information about internal control other than the management's reporting required by SOX 302, they rely on this information as an indicator of possible future reporting deficiencies. Therefore, I expect that investors of non-accelerated filers may react to 302 disclosures, unlike investors of accelerated filers who can rely on the assurance of the external auditors.

H2: The market reaction to DCP disclosures is significant (not significant) for non-accelerated (accelerated) filers.

To test whether the significant market reaction is because the "richness" of the information environment of large accelerated firms, as indicated by Beneish et al. (2008), I test the effect of the level of information asymmetry—as a proxy for the information environment richness—on the market reaction to disclosures related to DCP.

H3: The market reaction to the DCP is not affected by the levels of information asymmetry.

Beneish et al. (2008) find that "accelerated filers—larger firms required to file under Section 404—have significantly less negative returns" compared to non-accelerated filers. They explain the difference as a result of the "richness of the firm's information environment." However, and continuing the same logic leading to H2, I expect that the reason for difference between accelerated and non-accelerated filers in terms of market reaction to DCP disclosures is caused by the encompassing effect of the independent auditor report on internal control. In other words, the investors prefer to rely on the assurance of the independent auditor about internal control issues; their reliance on management's unaudited reports of internal control issues—specially ambiguous ones—occurs only in the absence of assurance from an independent specialist with access to information and evidence about the firm's internal control. To examine whether this expectation is correct, that is, whether investors prefer to rely on the auditor's internal control report when available rather than of the management's report, I test for a significant market reaction to a negative auditor report on internal control and hypothesize the following:

H4a: The market reacts negatively to a qualified 404 report.

To provide more evidence on the confounding effect of the auditor's report on internal control and whether it is relied on by the market to assess internal control related issues, or it is used in conjunction with management reports, I test the following hypothesis:

H4b: The market does not react differently to audit reports on internal control effectiveness after a DCP deficiency disclosure.

The auditor, however, unlike the market participants, is expected to differentiate between the ICFR issues and DCP issues. The auditor can infer that in the case of deficiencies related to DCP, management will not receive information that should be disclosed in a timely manner which can lead to

unreliable financial reporting. I expect that the auditor, as the last line of defense, will consider all signals to assess the effectiveness of client's internal control before issuing a report. The auditor also will be aware of the increased litigation and reputation risks if the management discloses deficiencies in its DCP and the auditor issues a clean report on the firm's internal control as a whole. Thus is the final hypothesis:

H5: Auditors take into considerations the DCP deficiencies in reporting decisions on client's internal control.

Data Analyses

To test the market reaction to disclosures about DCP as required under SOX 302, I use an event study approach. I use an OLS regression model where cumulative abnormal return is regressed on variables related to DCP disclosures, in addition to control variables. Specifically, I test H1a using the following regression model.

$$CAR_{it} = \alpha_0 + \alpha_1 DCP_{it} + \alpha_2 BIG4_{it} + \alpha_3 LN_AT_{it} + \alpha_4 FCA_{it} + \alpha_5 AQP_{it} + \alpha_6 SALEG_{it} + \alpha_7 E_SURPRISE_{it} + \alpha_8 REPEAT_{it} + \alpha_9 DAC_{it} + \alpha_{10} LOSS_{it} + \alpha_{11} IFE_{it} + \varepsilon_{it} \quad (1)$$

Where CAR is the cumulative abnormal return derived from the market model approach and estimated over a 180-day estimation period and 3-day event window using the following model:

$$R_{it} = a + b R_{mt} + e_{it}, \text{ where } t = -180, \dots, -3 \text{ (Estimation period)}$$

$$AR_{it} = R_{it} - \hat{a} - \hat{b} R_{mt}$$

$$CAR = \sum_1^3 AR_{it} \text{ over the three-day event period}$$

Where R_{it} is the stock-specific return regressed on R_m , the market return, AR_{it} is the abnormal return calculated by subtracting the estimated normal return from the stock return; then the abnormal return is accumulated over a three-day window surrounding the event date, which is the date of the management report whether it is 10-K, 10-Q, 8-K, or others. DCP is a dummy variable that equals one if the firm indicates in its report that it has an ineffective DCP, and zero otherwise. To control for other variables that may have an effect on the association between market return and management disclosure on DCP or ICFR, I use the following control variables: BIG4 which is a dummy variable that equals one if the auditor is among the Big 4 firms. I control for this variable as Beneish et al. (2008) find that the auditor quality attenuates the market response to SOX 302 disclosures. LN_AT is the natural log of total assets to control for the firm size. FCA and AQP are dummy variables that equal one if there is a foreign currency transaction and if there is an acquisition or a merger and zero otherwise, respectively. They are included to control for the complexity of the firm's operations, which is associated with the audit quality, effort, and risk. SALEG is sales growth measured as a percentage change in sales over the previous quarter. Following Hammersley et al. (2008), I control for E_SURPRISE which is the earnings surprise measured as the difference between current quarter earnings and the earnings of the same quarter of the previous year, REPEAT is a dummy variable that equals one if it is the second consecutive quarter to report a DCP deficiency, LOSS is a dummy variable that equals one if the quarter earnings is negative and zero otherwise, IFE is the industry fixed effect, and finally DAC is discretionary accruals measured using the performance-adjusted Modified Jones Model following Kothari et al. (2005):

$$ACC_{it} / AT_{it-1} = \alpha_0 1/AT_{it-1} + \alpha_1 (\Delta Revenue_{it} - \Delta AR_{it}) / AT_{it-1} + \alpha_2 PPE_{it} / AT_{it-1} + \varepsilon_{it}$$

The dependent variable is estimated as follow:

$$ACC_{it} / AT_{it-1} = (\Delta CA_{it} - \Delta CL_{it} - \Delta CASH_{it} + \Delta STD_{it} - DEP_{it}) / AT_{it-1}$$

Where ACC is total accruals, AT is total assets, Δ Revenue is the change in revenue, Δ AR is the change in accounts receivables, PPE is total property plant and equipment, Δ CL is the change in current

liabilities, Δ cash is the change in cash and cash equivalents, Δ STD is the change in short term debt, and DEP is depreciation expense.

To test H1b, the following regression model is estimated, where DC_NUM is the number of DCP deficiencies reported in the report.

$$CAR_{it} = \alpha_0 + \alpha_1 DC_NUM_{it} + \alpha_2 BIG4_{it} + \alpha_3 LN_AT_{it} + \alpha_4 FCA_{it} + \alpha_5 AQP_{it} + \alpha_6 SALEG_{it} + \alpha_7 E_SURPRISE_{it} + \alpha_8 REPEAT_{it} + \alpha_9 DAC_{it} + \alpha_{10} LOSS_{it} + \alpha_{11} IFE_{it} + \varepsilon_{it} \quad (2)$$

To test H1c, the CAR is regressed on MW, which is a dummy variable that equals one if the disclosure classified the deficiency as material weakness, zero otherwise.

$$CAR_{it} = \alpha_0 + \alpha_1 MW_{it} + \alpha_2 BIG4_{it} + \alpha_3 LN_AT_{it} + \alpha_4 FCA_{it} + \alpha_5 AQP_{it} + \alpha_6 SALEG_{it} + \alpha_7 E_SURPRISE_{it} + \alpha_8 REPEAT_{it} + \alpha_9 DAC_{it} + \alpha_{10} LOSS_{it} + \alpha_{11} IFE_{it} + \varepsilon_{it} \quad (3)$$

To test H2 on the question of whether the DCP disclosure is significant for non-accelerated filers but not for accelerated filers, I use Model (1) for two subsamples: one subsample of accelerated filers and the other for non-accelerated filers. And to test H3—in which I propose that the reason behind the statistically significant market reaction to the DCP disclosure only for accelerated filers is not the richness of the information environment where these entities operates—I run the first three models twice, once for the upper quartile of the bid-ask spread and one for the lower quartile of the accelerated filers subsample. The bid-ask spread is a measure of information asymmetry and is calculated using the following formula: $(Ask_average - Bid_average) / (Ask_average + Bid_average)/2$. Where the average bid and average ask prices are calculated over 11 days, starting eight days before event date. I also run the first three models with the spread as a control and interaction term with the variables of interest in these models, DCP, DC_NUM, and MW.

To test H4a—whether the investors consider information about internal control related deficiencies, but would rely on the auditor’s report, if it exists, instead of the management’s disclosure—I use Model (4), where AUOPIC is a dummy variable that equals one if the auditor’s report is other than unmodified, and zero if it is unmodified. And to test H4b, the interaction term AUOPIC * DCP is added to the model to see the effect of the DCP deficiency disclosures on the market reaction to an internal control auditor report, and whether the market use management disclosure on DCP as an antecedent of a negative SOX 404 report.

$$CAR_{it} = \alpha_0 + \alpha_1 DCP_{it} + \alpha_2 AUOPIC_{it} + \alpha_3 AUOPIC*DCP_{it} + \alpha_4 BIG4_{it} + \alpha_5 LN_AT_{it} + \alpha_6 FCA_{it} + \alpha_7 AQP_{it} + \alpha_8 SALEG_{it} + \alpha_9 E_SURPRISE_{it} + \alpha_{10} REPEAT_{it} + \alpha_{11} DAC_{it} + \alpha_{12} LOSS_{it} + \alpha_{11} IFE_{it} + \varepsilon_{it} \quad (4)$$

Finally, to test whether auditors take into consideration management’s disclosure on DCP, number of DCP disclosed deficiencies, and DCP deficiency severity when expressing their opinion on internal control, I use the following logit models:

$$AUOPIC_{it} = \alpha_0 + \alpha_1 DCP_{it} + \alpha_2 BIG4_{it} + \alpha_3 LN_AT_{it} + \alpha_4 FCA_{it} + \alpha_5 AQP_{it} + \alpha_6 SALEG_{it} + \alpha_7 E_SURPRISE_{it} + \alpha_8 REPEAT_{it} + \alpha_9 DAC_{it} + \alpha_{10} LOSS_{it} + \alpha_{11} IFE_{it} + \varepsilon_{it} \quad (5-1)$$

$$AUOPIC_{it} = \alpha_0 + \alpha_1 DC_NUM_{it} + \alpha_2 BIG4_{it} + \alpha_3 LN_AT_{it} + \alpha_4 FCA_{it} + \alpha_5 AQP_{it} + \alpha_6 SALEG_{it} + \alpha_7 E_SURPRISE_{it} + \alpha_8 REPEAT_{it} + \alpha_9 DAC_{it} + \alpha_{10} LOSS_{it} + \alpha_{11} IFE_{it} + \varepsilon_{it} \quad (5-2)$$

$$AUOPIC_{it} = \alpha_0 + \alpha_1 MW_{it} + \alpha_2 BIG4_{it} + \alpha_3 LN_AT_{it} + \alpha_4 FCA_{it} + \alpha_5 AQP_{it} + \alpha_6 SALEG_{it} + \alpha_7 E_SURPRISE_{it} + \alpha_8 REPEAT_{it} + \alpha_9 DAC_{it} + \alpha_{10} LOSS_{it} + \alpha_{11} IFE_{it} + \varepsilon_{it} \quad (5-3)$$

Data

Starting with the Audit Analytics database, observations from January 2000 through the end of July 2015 are collected. Since Section 302 became effective on August 29, 2002, observations with a

period ending before that date are removed. I also removed duplicate observations with the same CIK number and date. This left 469,344 observations. Merging this dataset with data from Compustat, a final sample of 64,957 is left to be merged with CRSP data. After removing observations with missing values and merging the CRSP data set with the Compustat and Audit Analytics data, 50,173 observations with complete data on all variables remain. To control for the effect of outliers, I remove the upper and lower 1% of all variables used in the models. This leaves a final sample of 32,844 observations, of which 1,800 observations with DCPs and 31,044 without.

Results

Table 1 shows descriptive statistics for the whole sample, including firms disclosing DCP deficiencies and firms with no such deficiencies. Table 1 shows the characteristics of the firms in the data set and the differences across the two subsamples of firms disclosing and firms not disclosing DCP deficiencies. The results show that firms disclosing DCP deficiencies are significantly smaller in terms of total assets, sales revenue, and market value. In addition they have lower growth rates and a higher debt-to-equity ratio. They are also less profitable in terms of net income and ROA, and they more often report losses and negative earnings surprises. They are more likely to have mergers or acquisitions, and less likely to be audited by one of the Big 4 firms. It is interesting to see that this sample reveals no significant difference in discretionary accruals between firms in the two subsamples.

Table 2 shows correlations between variables used in the models. For the whole sample, as shown in Panel A, none of the variables of interest—DCP, MW, and DC_NUM—have a significant correlation with the CAR. However, the Pearson (Spearman) correlations for only non-accelerated firms (defined as firms with market value of less than \$75 million at the end of the period) results in Panel B indicate that the DCP deficiency and MW are significant at 5% (5%) and 10% (5%), respectively. In Panel C the correlations are estimated for the accelerated subsample; none of these variables are correlated with the CAR. These differences across accelerated and non-accelerated filers provide partial support to H2. Correlations for the whole data set show that DCP, MW, and DC_NUM are negatively and significantly correlated with both measures of firm size: sales and total assets, also with net income and Big 4. On the other hand they are positively correlated with loss. However, they have no correlation with discretionary accruals. Panel B and Panel C of Table 2 illustrate that there are differences between accelerated and non-accelerated filers, which is consistent with the descriptive results, especially in terms of the correlations of the three variables of interest, DCP, DC_NUM, and MW with total assets and net income.

Table 3 shows the results of the regression analyses. The results for the whole sample show that the association between disclosing a deficiency under the requirements of SOX 302 (DCP) and CAR is not significant (coefficient: -0.037 and t-value: -0.18) indicating that on average the market does not react to these disclosures. A test for multicollinearity is performed on the independent variables because of the significant correlations that some of them have with each other. The variance inflation factor (VIF) is estimated for all OLS models and none of the independent variables' VIF exceeded 1.95, suggesting that multicollinearity is not a problem in the analysis that follows.

TABLE 1
Descriptive Statistics

Variable	Whole Sample				DCP = 1				DCP = 0				T-test
	N	Mean	Median	Std Dev	N	Mean	Median	Std Dev	N	Mean	Median	Std Dev	
CAR	32844	-0.199	-0.001	0.066	1800	-0.398	-0.003	0.082	31044	-0.188	-0.001	0.065	Not-sig
DCP	32844	0.055	0	0.228	1800	1	1	0	31044	0	0	0	--
MW	32844	0.054	0	0.226	1800	0.923	1	0.266	31044	0.004	0	0.062	--
DC_NUM	32844	0.344	0	1.071	1800	3.992	4	1.424	31044	0.133	0	0.528	***
REPEAT	32844	0.061	0	0.239	1800	0.678	1	0.467	31044	0.025	0	0.156	***
AT	32844	1692.680	464.067	3615.710	1800	736.034	201.369	1770.650	31044	1748.140	490.178	3686.950	***
LN_AT	32844	6.090	6.140	1.752	1800	5.378	5.305	1.526	31044	6.131	6.195	1.755	***
SALES	32844	369.426	100.963	822.060	1800	181.094	40.799	495.795	31044	380.346	106.914	835.791	***
SALEG	32844	6.894	0.951	73.271	1800	2.585	0.687	42.190	31044	7.144	0.973	74.670	***
MKVAL	32844	1968.100	543.806	4506.400	1800	747.911	210.616	2316.800	31044	2038.850	575.156	4591.600	***
OANCF	32844	106.210	16.313	300.561	1800	31.892	2.490	114.609	31044	110.519	17.899	307.368	***
DTEQ	32844	54.082	23.344	131.502	1800	57.835	17.676	142.096	31044	53.864	23.766	130.860	***
ROA	32844	-0.002	0.010	0.069	1800	-0.015	0.002	0.075	31044	-0.001	0.011	0.068	**
PPENT	32844	573.785	68.794	1710.750	1800	225.514	29.451	655.008	31044	593.978	73.338	1750.450	***
NI	32844	22.236	3.573	73.126	1800	2.201	0.211	31.108	31044	23.398	3.989	74.678	***
LOSS	32844	0.298	0	0.457	1800	0.472	0	0.499	31044	0.288	0	0.453	***
E_SURPR	32844	0.027	0.020	0.625	1800	-0.018	0.000	0.745	31044	0.030	0.020	0.618	**
PRICE	32844	23.390	16.980	21.415	1800	13.585	8.400	14.515	31044	23.959	17.685	21.612	***
FCA	32844	-0.047	0	0.803	1800	-0.052	0	0.800	31044	-0.047	0	0.804	Not-sig
AQP	32844	-0.280	0	1.366	1800	-0.153	0	0.983	31044	-0.287	0	1.385	***
BIG4	32844	0.729	1	0.445	1800	0.539	1	0.499	31044	0.740	1	0.439	***
DAC	32844	0.001	0.000	0.066	1800	0.002	0.001	0.087	31044	0.001	0.0002	0.064	Not-sig

***, **, and * are for 1, 5, and 10% significance levels - two-tailed t-test. The t-test results show the difference between the two subsamples of firms disclosing and not disclosing DCP deficiencies.

Variables are as defined in Appendix A

TABLE 2: Correlation Matrix
 Panel A: Correlations for the Whole Sample – n = 32,844
 Pearson on the Top Right and Spearman on Bottom Left

	CAR	DCP	MW	DC_NUM	REPEAT	AT	LN_AT	SALES	SALEG	NI	loss	E SURP	BIG4	DAC
CAR	1	-0.007	-0.003	-0.001	0.000	0.026	0.069	0.029	0.031	0.035	-0.083	0.051	0.067	-0.013
		0.1892	0.5584	0.8101	0.9855	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	0.0187
DCP	-0.009	1	0.924	0.820	0.622	-0.064	-0.098	-0.055	-0.014	-0.066	0.092	-0.017	-0.103	0.003
	0.0995		<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	0.0103	<.0001	<.0001	0.0017	<.0001	0.546
MW	-0.004	0.924	1	0.816	0.594	-0.063	-0.091	-0.054	-0.013	-0.065	0.089	-0.021	-0.097	-0.001
	0.4889	<.0001		<.0001	<.0001	<.0001	<.0001	<.0001	0.0215	<.0001	<.0001	0.0001	<.0001	0.852
DC_NUM	-0.003	0.646	0.643	1	0.628	-0.049	-0.065	-0.037	-0.003	-0.062	0.086	-0.020	-0.087	-0.007
	0.5712	<.0001	<.0001		<.0001	<.0001	<.0001	<.0001	0.5281	<.0001	<.0001	0.0003	<.0001	0.207
REPEAT	-0.004	0.622	0.594	0.502	1	-0.061	-0.091	-0.055	-0.013	-0.059	0.078	-0.004	-0.096	-0.005
	0.496	<.0001	<.0001	<.0001		<.0001	<.0001	<.0001	0.0176	<.0001	<.0001	0.4354	<.0001	0.362
AT	0.076	-0.103	-0.096	-0.018	-0.095	1	0.651	0.795	0.159	0.746	-0.178	0.016	0.236	-0.015
	<.0001	<.0001	<.0001	0.0013	<.0001		<.0001	<.0001	<.0001	<.0001	<.0001	0.003	<.0001	0.005
LN_AT	0.076	-0.103	-0.096	-0.018	-0.095	1	1	0.569	0.119	0.474	-0.321	0.013	0.529	-0.054
	<.0001	<.0001	<.0001	0.0013	<.0001	<.0001		<.0001	<.0001	<.0001	<.0001	0.0191	<.0001	<.0001
SALES	0.084	-0.097	-0.089	-0.012	-0.090	0.910	0.910	1	0.255	0.685	-0.197	0.028	0.228	-0.012
	<.0001	<.0001	<.0001	0.0298	<.0001	<.0001	<.0001		<.0001	<.0001	<.0001	<.0001	<.0001	0.0276
SALEG	0.068	-0.013	-0.011	0.024	-0.020	0.179	0.179	0.218	1	0.234	-0.098	0.046	0.049	0.057
	<.0001	0.0224	0.0526	<.0001	0.0003	<.0001	<.0001	<.0001		<.0001	<.0001	<.0001	<.0001	<.0001
NI	0.095	-0.113	-0.110	-0.057	-0.096	0.613	0.613	0.667	0.251	1	-0.309	0.139	0.167	-0.008
	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001		<.0001	<.0001	<.0001	0.136
LOSS	-0.088	0.092	0.089	0.053	0.078	-0.322	-0.322	-0.413	-0.180	-0.792	1	-0.171	-0.102	-0.022
	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001		<.0001	<.0001	<.0001
E_SURP	0.077	-0.033	-0.038	-0.034	-0.014	0.082	0.082	0.116	0.163	0.335	-0.285	1	0.012	0.037
	<.0001	<.0001	<.0001	<.0001	0.0105	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001		0.0267	<.0001
BIG4	0.068	-0.103	-0.097	-0.051	-0.096	0.525	0.525	0.476	0.099	0.270	-0.102	0.041	1	-0.040
	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001		<.0001
DAC	-0.033	0.005	0.001	-0.011	0.002	-0.076	-0.076	-0.069	0.101	-0.016	-0.017	0.048	-0.069	1
	<.0001	0.3712	0.9127	0.0529	0.6594	<.0001	<.0001	<.0001	<.0001	0.0037	0.002	<.0001	<.0001	

Panel B: Correlations for Subsample: Non-accelerated – n = 4,729
 Pearson on the Top Right and Spearman on Bottom Left

	CAR	DCP	MW	DC_NUM	REPEAT	AT	LN_AT	SALES	SALEG	NI	loss	E_SURP	BIG4	DAC
CAR	1	-0.029	-0.028	-0.014	0.007	0.008	0.027	-0.004	0.034	0.031	-0.071	0.042	0.027	0.031
		0.0498	0.0503	0.3252	0.6107	0.604	0.0659	0.7595	0.0196	0.035	<.0001	0.0035	0.0645	0.0358
DCP	-0.034	1	0.862	0.828	0.685	0.037	0.084	0.019	0.022	-0.022	0.038	-0.007	-0.063	-0.006
	0.0184		<.0001	<.0001	<.0001	0.0118	<.0001	0.1839	0.1392	0.1297	0.0086	0.6132	<.0001	0.6574
MW	-0.029	0.862	1	0.794	0.618	0.046	0.095	0.028	0.021	-0.033	0.042	-0.022	-0.068	-0.018
	0.0491	<.0001		<.0001	<.0001	0.0014	<.0001	0.0525	0.1452	0.0247	0.0035	0.1329	<.0001	0.2274
DC_NUM	-0.017	0.793	0.759	1	0.686	0.044	0.090	0.019	0.029	-0.015	0.046	-0.005	-0.076	-0.003
	0.2541	<.0001	<.0001		<.0001	0.0023	<.0001	0.1913	0.0482	0.3	0.0017	0.7097	<.0001	0.8413
REPEAT	0.004	0.685	0.618	0.652	1	0.052	0.087	0.026	0.003	-0.023	0.033	-0.011	-0.056	-0.023
	0.8089	<.0001	<.0001	<.0001		0.0004	<.0001	0.072	0.8532	0.1106	0.0232	0.4641	0.0001	0.107
AT	0.042	0.093	0.105	0.101	0.090	1	0.739	0.565	-0.052	-0.209	0.006	0.047	0.214	-0.052
	0.0042	<.0001	<.0001	<.0001	<.0001		<.0001	<.0001	0.0004	<.0001	0.6718	0.0014	<.0001	0.0004
LN_AT	0.042	0.093	0.105	0.101	0.090	1	1	0.340	-0.014	-0.140	-0.065	-0.031	0.239	-0.097
	0.0042	<.0001	<.0001	<.0001	<.0001	<.0001		<.0001	0.349	<.0001	<.0001	0.0342	<.0001	<.0001
SALES	0.052	0.020	0.045	0.036	0.020	0.733	0.733	1	0.156	-0.078	-0.037	0.067	0.123	-0.019
	0.0004	0.1659	0.0021	0.0144	0.1649	<.0001	<.0001		<.0001	<.0001	0.0115	<.0001	<.0001	0.201
SALEG	0.094	0.021	0.023	0.027	0.016	0.036	0.036	0.129	1	0.100	-0.081	-0.019	-0.029	0.075
	<.0001	0.1481	0.1131	0.066	0.2621	0.0125	0.0125	<.0001		<.0001	<.0001	0.1826	0.0432	<.0001
NI	0.101	-0.013	-0.018	-0.026	-0.011	0.110	0.110	0.289	0.215	1	-0.347	0.367	-0.151	0.042
	<.0001	0.3775	0.2221	0.0691	0.4369	<.0001	<.0001	<.0001	<.0001		<.0001	<.0001	<.0001	0.0043
LOSS	-0.086	0.038	0.042	0.050	0.033	-0.070	-0.070	-0.246	-0.173	-0.865	1	-0.118	0.095	-0.071
	<.0001	0.0086	0.0035	0.0005	0.0232	<.0001	<.0001	<.0001	<.0001	<.0001		<.0001	<.0001	<.0001
E_SURP	0.082	-0.028	-0.043	-0.031	-0.006	-0.047	-0.047	0.012	0.139	0.333		1	0.006	0.063
	<.0001	0.0503	0.0031	0.0337	0.6779	0.0012	0.0012	0.3944	<.0001	<.0001	<.0001		0.6871	<.0001
BIG4	0.032	-0.063	-0.068	-0.072	-0.056	0.224	0.224	0.137	-0.016	-0.114	0.095	-0.003	1	-0.010
	0.0257	<.0001	<.0001	<.0001	0.0001	<.0001	<.0001	<.0001	0.2806	<.0001	<.0001	0.8277		0.4838
DAC	0.024	-0.009	-0.024	-0.017	-0.013	-0.157	-0.157	-0.111	0.160	0.082	-0.084	0.096	-0.042	1
	0.1013	0.5185	0.1031	0.2359	0.3544	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	0.0042	

Panel C: Correlations for Subsample: Accelerated – n = 28,115
 Pearson on the Top Right and Spearman on Bottom Left

	CAR	DCP	MW	DC NUM	REPEAT	AT	LN_AT	SALES	SALEG	NI	loss	E SURP	BIG4	DAC
CAR	1	0.004	0.008	0.005	0.002	0.018	0.051	0.022	0.032	0.032	-0.077	0.052	0.051	-0.023
DCP	0.003	1	0.942	0.819	0.602	-0.060	-0.096	-0.051	-0.014	-0.065	0.093	-0.019	-0.084	0.003
MW	0.6471	<.0001	1	0.822	0.586	-0.061	-0.096	-0.052	-0.013	-0.065	0.090	-0.020	-0.083	0.001
DC_NM	0.001	0.613	0.617	1	0.612	-0.045	-0.064	-0.033	-0.003	-0.063	0.087	-0.022	-0.072	-0.011
REPEAT	0.9209	<.0001	<.0001	<.0001	1	-0.058	-0.091	-0.051	-0.012	-0.057	0.077	-0.002	-0.081	-0.003
AT	0.9542	<.0001	<.0001	<.0001	<.0001	1	0.692	0.789	0.155	0.741	-0.168	0.015	0.187	-0.009
LN_AT	0.051	-0.097	-0.098	-0.016	-0.092	<.0001	1	0.595	0.123	0.506	-0.311	0.010	0.381	-0.031
SALES	<.0001	<.0001	<.0001	0.0062	<.0001	<.0001	<.0001	1	0.252	0.680	-0.190	0.026	0.182	-0.006
SALEG	0.061	-0.089	-0.089	-0.008	-0.085	0.889	0.889	<.0001	1	0.232	-0.100	0.050	0.039	0.065
NI	<.0001	<.0001	<.0001	0.161	<.0001	<.0001	<.0001	<.0001	<.0001	1	-0.319	0.144	0.134	-0.004
LOSS	0.081	-0.112	-0.111	-0.058	-0.094	0.621	0.621	0.667	0.250	<.0001	<.0001	<.0001	<.0001	0.4851
E_SUR	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	1	-0.319	0.382	0.134
BIG4	-0.077	0.093	0.090	0.050	0.077	-0.305	-0.305	-0.397	-0.175	-0.766	<.0001	<.0001	<.0001	<.0001
DAC	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	1	0.006	0.032
	0.072	-0.031	-0.035	-0.034	-0.013	0.072	0.072	0.110	0.163	0.339	-0.282	<.0001	0.2939	<.0001
	<.0001	<.0001	<.0001	<.0001	0.0358	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	0.021	1
	0.046	-0.084	-0.083	-0.042	-0.081	0.378	0.378	0.350	0.068	0.205	-0.053	0.004	<.0001	-0.027
	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	0.0004	<.0001	<.0001
	-0.041	0.004	0.003	-0.010	0.003	-0.042	-0.042	-0.038	0.108	-0.006	-0.016	0.045	-0.045	1
	<.0001	0.4699	0.6125	0.1051	0.6674	<.0001	<.0001	<.0001	<.0001	0.3012	0.0066	<.0001	<.0001	<.0001

Variables are as defined in Appendix A

These results give support to H1a, that the market does not react to DCP deficiencies disclosures. Additionally, the results of running Model (2) indicate that the number of DCPs disclosed in one report (coefficient: 0.029 and t-value: 0.68) does not affect the cumulative abnormal return. These results also support H1b, that the number of reported DCP deficiencies does not affect the market reaction to the disclosures. For Model (3), the effect of classifying the DCP deficiency as a material weakness on the cumulative abnormal return is not significant (coefficient: 0.139 and t-value: 0.70), which leads to accepting H1c, which was the severity of the reported DCP does not affect the market reaction to disclosures.

TABLE 3
Regression Analyses of Market Reaction to Disclosure, Number, and the Severity of the DCP

Variables	Model 1	Model 2	Model 3
Intercept	-1.048 (-4.48)	-1.053 (-4.50)	-1.055 (-4.50)
DCP	-0.037 (-0.18)		
DCP_NUM		0.029 (0.68)	
MW			0.139 (0.70)
BIG4	0.706 (7.11)	0.709 (7.13)	0.709 (7.13)
LN_AT	0.109 (3.81)	0.109 (3.80)	0.110 (3.80)
FCA	0.029 (0.62)	0.028 (0.62)	0.028 (0.62)
AQP	0.041 (1.50)	0.042 (1.52)	0.041 (1.50)
SALEG	0.002 (3.44)	0.002 (3.43)	0.002 (3.43)
E_SURPRIS	0.404 (6.86)	0.405 (6.87)	0.405 (6.87)
REPEAT	0.355 (1.83)	0.252 (1.29)	0.256 (1.36)
DAC	-1.354 (-2.45)	-1.353 (-2.45)	-1.355 (-2.45)
LOSS	-0.946 (-10.69)	-0.950 (-10.73)	-0.949 (-10.73)
Ind. Effect	Included	Included	Included
N	32,844	32,844	32,844
ADJ. R ²	0.0128	0.0129	0.0129

Variables are as defined in Appendix A

A regression on two subsamples tested H2 on whether the market reaction to DCP disclosures depend on the firm's filing status, i.e., accelerated vs. non-accelerated filer. Table 4 shows that for the market reaction to DCP disclosures, while the coefficient is positive and marginally significant at 10% for the accelerated subsample (coefficient: 0.388 and t-value: 1.77), for the non-accelerated subsample it is negative and significant, at a 1% level, as expected (coefficient: -1.713 t-value: -3.07).

Also, while the coefficient on the number of disclosed DCPs is marginally significant and positive for the accelerated subsample (coefficient: 0.078 and t-value: 1.71), it is negative and significant at 5% for the non-accelerated subsample (coefficient: -0.256 and t-value: -1.96), consistent with the expectations. In Model 3, investors in accelerated filers react positively for DCPs that are classified as material weaknesses—contrary to the expectations—while for non-accelerated filers, the market reaction is negative and significant at a 1% level (coefficient: -1.509 and t-value: -2.79). The overall results in Table 4 provide support for H2, suggesting that the market reaction to DCP, DCP_NUM, and MW depends on the firm’s status as an accelerated or non-accelerated filer.

TABLE 4
Regression Analyses of Market Reaction to DCP - Accelerated Vs. Non-Accelerated

Variables	Model 1		Model 2		Model 3	
	<u>Acc.</u>	<u>Non-Acc.</u>	<u>Acc.</u>	<u>Non-Acc.</u>	<u>Acc.</u>	<u>Non-Acc.</u>
Intercept	-0.847 (-3.26)	-1.740 (-1.92)	-0.840 (-3.23)	-1.750 (-1.93)	-0.856 (-3.29)	-1.769 (-1.96)
DCP	0.388 (1.77)	-1.713 (-3.07)				
DCP_NUM			0.078 (1.71)	-0.256 (-1.96)		
MW					0.0553 (2.58)	-1.509 (-2.79)
BIG4	0.679 (6.33)	0.489 (1.58)	0.679 (6.33)	0.493 (1.59)	0.680 (6.35)	0.480 (1.55)
LN_AT	0.083 (2.62)	0.284 (1.93)	0.081 (2.57)	0.283 (1.91)	0.084 (2.62)	0.290 (1.96)
FCA	0.031 (0.72)	-0.899 (-1.07)	0.031 (0.72)	-0.948 (-1.13)	0.0311 (0.72)	-0.907 (-1.08)
AQP	0.041 (1.57)	-1.170 (-1.17)	0.043 (1.64)	-1.229 (-1.23)	0.041 (1.57)	-1.162 (-1.17)
SALEG	0.002 (3.73)	(0.022) (2.13)	0.002 (3.72)	0.022 (2.12)	0.002 (3.73)	0.022 (2.12)
E_SURPRIS	0.403 (6.63)	(0.479) (2.45)	0.403 (6.64)	0.480 (2.45)	0.404 (6.65)	0.468 (2.39)
REPEAT	0.109 (0.53)	1.518 (2.78)	0.110 (0.53)	1.120 (2.04)	0.024 (0.12)	1.245 (2.45)
DAC	-2.545 (-4.21)	2.449 (1.72)	-2.528 (-4.18)	2.432 (1.71)	-2.543 (-4.21)	2.378 (1.67)
LOSS	-0.890 (-9.40)	-1.079 (-4.33)	-0.890 (-9.41)	-1.081 (-4.33)	-0.893 (-9.44)	-1.072 (-4.30)
Ind. Effect	Included	Included	Included	Included	Included	Included
N	28,115	4,729	28,115	4,729	28,115	4,729
ADJ. R ²	0.0108	0.0194	0.0108	0.0108	0.0109	0.0116

Variables are as defined in Appendix A

Table 5 and Table 6 show the results of testing H3, H4a, and H4b. Hypothesis 3 examines the assumption (Beneish et al., 2008) that the reason for the significant effect of the DCP disclosure for accelerated filer is the richer information environment of these companies. Models for the upper and lower quartiles of the accelerated filers subsample are shown in Table 5. None of the coefficients, except on DC_NUM, are significant, whether when the bid-ask spread—the proxy for information asymmetry—is high or low. These results generally provide evidence that the richness of the information environment

is not the reason for the lack of market reaction to the DCP disclosure, contradicting Beneish et al. (2008). Further evidence is provided in Table 6, with an estimate of the interaction term of the variables of interest, i.e., DCP, DC_NUM, and MW, with the spread; the interaction term in the three models is not significant (t-values for Model 1, 2 and 3 are 0.63, 0.98 and 0.82, respectively).

TABLE 5
Regression Analyses of the Effect of Information Environment Richness of Market Reaction to DCP

Variables	Model 1		Model 2		Model 3		Model 4 All Obs. with AUOPIC and DCP disclosure
	25 percentile spread	75 percentile spread	25 percentile spread	75 percentile spread	25 percentile spread	75 percentile spread	
Intercept	1.402 (2.69)	-2.045 (-3.09)	1.407 (2.69)	-2.014 (-3.10)	1.400 (2.68)	-2.057 (-3.11)	-0.362 (-0.74)
DCP	-0.212 (-0.44)	-0.086 (-0.21)					0.429 (0.52)
DCP_NUM			-0.199 (-2.10)	0.030 (0.34)			
MW					-0.058 (-0.12)	0.319 (0.82)	
AUOPIC							-0.609 (-2.88)
AUOPIC*DCP							-0.383 (-0.43)
BIG4	0.244 (0.92)	0.590 (2.84)	0.250 (0.94)	0.595 (2.86)	0.244 (0.92)	0.599 (2.88)	0.493 (2.61)
LN_AT	-0.133 (-2.31)	0.254 (2.72)	-0.132 (-2.29)	0.252 (2.70)	-0.133 (-2.30)	0.253 (2.70)	-0.001 (-0.02)
FCA	0.006 (0.12)	-0.124 (-0.81)	0.005 (0.11)	-0.123 (-0.80)	0.006 (0.13)	-0.123 (-0.81)	0.082 (0.94)
AQP	0.031 (1.23)	0.153 (1.11)	0.026 (1.07)	0.154 (1.12)	0.031 (1.23)	0.153 (1.11)	0.005 (11)
SALEG	0.002 (3.70)	0.005 (2.26)	0.002 (3.72)	0.005 (2.25)	0.002 (3.69)	0.006 (2.25)	0.0001 (1.06)
E_SURPRIS	0.603 (5.49)	0.540 (4.27)	0.598 (5.44)	0.539 (4.26)	0.603 (5.50)	0.539 (4.27)	0.185 (2.17)
REPEAT	0.132 (0.30)	0.439 (1.15)	0.514 (1.17)	0.305 (0.79)	0.051 (0.12)	0.208 (0.56)	0.152 (0.49)
DAC	-1.885 (-1.80)	-1.485 (-1.19)	-1.924 (-1.84)	-1.480 (-1.19)	-1.88 (-1.80)	-1.483 (-1.19)	-0.282 (-0.30)
LOSS	-0.181 (-0.96)	-0.845 (-4.27)	-0.174 (-0.92)	-0.851 (-4.30)	-0.182 (-0.96)	-0.856 (-4.33)	-0.802 (-4.96)
Ind. Effect	Included	Included	Included	Included	Included	Included	Included
N	7,029	7,029	7,029	7,029	7,029	7,029	8,361
ADJ. R ²	0.001	0.011	0.001	0.011	0.001	0.011	0.009

Variables are as defined in Appendix A

If the market does not react to the DCP disclosure regardless of the richness of the information environment, does it pay attention to the attestation of the independent auditor on the effectiveness of internal control? The results in the last panel of Table 5 provide evidence that the market reaction is

negatively significant to the auditor's report on internal control if it is other than unqualified report (coefficient: -0.609, t value: -2.88), providing support to H4a. The interaction term of AUOPIC_DCP is also not significant, which means that the disclosure of a DCP deficiency does not affect the association between the auditor report and CAR, providing support to H4b.

TABLE 6
Additional Analyses of the Effect of Information Environment Richness on Market Reaction to DCP

Variables	Model (1)			Model (2)			Model (3)		
Intercept	-0.847 (-3.26)	-0.583 (-2.11)	-0.561 (-2.02)	-0.840 (-3.23)	-0.576 (-2.09)	-0.536 (-1.92)	-0.856 (-3.29)	-0.590 (-2.14)	-0.561 (-2.02)
DCP	0.388 (1.77)	0.405 (1.85)	0.355 (1.52)						
DCP_NUM				0.078 (1.71)	0.082 (1.79)	0.068 (1.41)			
MW							0.0553 (2.58)	0.570 (2.66)	0.504 (2.20)
SPREAD		-21.411 (-2.87)	-23.971 (-2.82)	-21.400 (-2.86)	-25.828 (-2.96)			-21.579 (-2.89)	-24.870 (-2.93)
INTERACTION			10.709 (0.63)			3.378 (0.98)			13.982 (0.82)
BIG4	0.679 (6.33)	0.649 (6.02)	0.648 (6.01)	0.679 (6.33)	0.649 (6.02)	0.647 (6.00)	0.680 (6.35)	0.651 (6.04)	0.650 (6.03)
LN_AT	0.083 (2.62)	0.0556 (1.69)	0.053 (1.60)	0.081 (2.57)	0.054 (1.64)	0.050 (1.50)	0.084 (2.62)	0.056 (1.71)	0.053 (1.60)
FCA	0.031 (0.72)	0.030 (0.70)	0.030 (0.69)	0.031 (0.72)	0.030 (0.69)	0.030 (0.68)	0.0311 (0.72)	0.030 (0.69)	0.30 (0.69)
AQP	0.041 (1.57)	0.041 (1.55)	0.041 (1.55)	0.043 (1.64)	0.043 (1.62)	0.042 (1.61)	0.041 (1.57)	0.041 (1.55)	0.41 (1.55)
SALEG	0.002 (3.73)	0.002 (3.77)	0.002 (3.77)	0.002 (3.72)	0.002 (3.75)	0.002 (3.76)	0.002 (3.73)	0.002 (3.77)	0.002 (3.77)
E_SURPRIS	0.403 (6.63)	0.402 (6.61)	0.402 (6.61)	0.403 (6.64)	0.402 (6.61)	0.402 (6.62)	0.404 (6.65)	0.403 (6.62)	0.403 (6.62)
REPEAT	0.109 (0.53)	0.133 (0.64)	0.131 (0.63)	0.110 (0.53)	0.133 (0.64)	0.127 (0.61)	0.024 (0.12)	0.047 (0.23)	0.046 (0.22)
DAC	-2.545 (-4.21)	-2.561 (-4.24)	-2.558 (-4.23)	-2.528 (-4.18)	-2.543 (-4.21)	-2.540 (-4.20)	-2.543 (-4.21)	-2.559 (-4.24)	-2.555 (-4.23)
LOSS	-0.890 (-9.40)	-0.877 (-9.26)	-0.876 (-9.24)	-0.890 (-9.41)	-0.878 (-9.26)	-0.876 (-9.24)	-0.893 (-9.44)	-0.880 (-9.29)	-0.879 (-9.27)
Ind. Effect	Included	Included	Included	Included	Included	Included	Included	Included	Included
N	28,115	28,115	28,115	28,115	28,115	28,115	28,115	28,115	28,115
ADJ. R ²	0.0108	0.011	0.011	0.0108	0.011	0.011	0.0109	0.011	0.011

Variables are as defined in Appendix A

In Table 7, Hypothesis 5 was tested with a Logit model, where the dependent variable is a dummy variable that equals one if the external auditor gives a negative opinion (opinion other than unqualified) in the current year. Models 5-1 to 5-3 test whether the disclosure of DCP, the number of DCPs disclosed by the management, and the classification of the disclosed DCP as a material weakness have an effect on the auditor's opinion on internal control. The coefficient on the DCP is positive and significant (coefficient: 2.129 and t-value: 26.06), indicating that the external auditor takes into

consideration the weaknesses in the disclosure controls and procedures reported by the managers when expressing an opinion on the internal control as required under SOX 404. Also, the auditor's internal control opinion is positively and significantly affected by number of these DCPs (coefficient: 0.458 and t-value: 25.35). The results of Model 5-3 also show that the effect of the DCP classification as a material weakness has a positive effect on the likelihood of a negative report by the independent auditor (coefficient: 2.077 and t-value: 26.12). The overall results in Table 7 support H5 that the auditor takes into consideration management disclosures required under SOX 302 in the opinion issued on internal control.

TABLE 7

Regression Analysis of the Relationship between External Auditor's Report on Internal Control and DCP Disclosure, Number of DCP Disclosed, and the Severity of the Disclosed DCP
[Logit Model for Accelerated Filers Subsample]

Variables	Model 5-1	Model 5-2	Model 5-3
Intercept	1.425 (14.85)	1.463 (15.26)	1.417 (14.77)
DCP	2.129 (26.06)		
DCP_NUM		0.458 (25.35)	
MW			2.077 (26.12)
BIG4	-0.416 (-9.04)	-0.403 (-8.79)	-0.415 (-9.02)
LN_AT	-0.563 (-33.00)	-0.577 (-33.72)	-0.562 (-32.96)
FCA	-0.018 (-0.59)	-0.023 (-0.76)	-0.024 (-0.78)
AQP	-0.039 (-2.16)	-0.022 (-1.20)	-0.040 (-2.18)
SALEG	-0.0002 (-0.45)	-0.0003 (-0.76)	-0.0002 (-0.50)
E_SURPRIS	-0.024 (-0.77)	-0.025 (-0.78)	-0.021 (-0.67)
REPEAT	0.411 (4.94)	0.362 (4.39)	0.468 (5.75)
DAC	0.157 (0.53)	0.285 (0.97)	0.179 (0.61)
LOSS	0.287 (6.59)	0.281 (6.46)	0.291 (6.67)
N	28,115	28,115	28,115
McFadden's LRI	0.1884	0.1867	0.1885

Variables are as defined in Appendix A

Conclusions

Motivated by limited research in this area, this study contributes to the literature on internal control related issues by focusing on disclosure controls and procedures (DCP) required to be reported on under SOX 302 over an 11-year period. Those DCP are required in order to inform management about issues that need disclosure in a timely manner to enable them to make appropriate disclosure decisions. This study provides updated evidence on the market reaction to these disclosures. Additionally, it provides evidence on the reason behind the lack of market reaction to these disclosures when made by accelerated filers. The results indicate that the market does not respond to these disclosures unless they are reported by non-accelerated filers. The results also refute the assumption of Beneish et al. (2008) that information environment richness causes the lack of market reaction in the case of accelerated filers. Rather, the results show that investors rely on the external auditor internal control report, when one exists, and in the case of its absence (i.e., in the case of non-accelerated filers, who are not required to follow SOX 404 and therefore not subject to internal control audit), investors use the available information disclosed under SOX 302. On the other hand, it is shown that auditors do take into consideration the management disclosures under SOX 302 when deciding on their internal control audit opinion. The results have important implications for audit committees as well as standard-setters. Considering the audit committees responsibility of overseeing financial reporting, they should work with managers to improve the DCP related disclosures. Likewise, standards setters should be interested in evidence regarding the value relevance of required disclosures.

Appendix A: Variable Definitions

Variable	Definition
AQP	dummy that equals one if there is an acquisition or a merger, zero otherwise
AT	total assets in \$ millions
AUOPIC	dummy variable that equals one if the auditor's report is other than unmodified, and zero if it is unmodified
Bid-ask spread	a measure of information asymmetry and is calculated using the following formula: $(Ask_average - Bid_average) / (Ask_average + Bid_average)/2$
BIG4	dummy variable that equals one if the auditor is one of the Big 4 firms, zero otherwise
CAR	Cumulative abnormal return, calculated using the market model over 180 estimation period and 3 days event period
DAC	performance-adjusted discretionary accruals estimated using the Modified Jones Model and following Kothari et al. (2005)
DC_NUM	number of different deficiencies reported
DCP	dummy variable that equals one if there is a 302 (disclosure deficiency) disclosure, zero otherwise
DTEQ	debt to equity ratio
E-SURPR	earnings surprise calculated as the difference between the current quarter reported earnings minus earnings reported during the same quarter in the previous year
FCA	dummy variable that equals one if there is a foreign currency transaction, zero otherwise
IFE	the industry fixed effect
LN_AT	natural log of total assets
LOSS	dummy variable that equals one if the net income is negative and zero otherwise
MKVAL	market value of the firm at the end of the quarter in \$ millions
MW	dummy variable that equals one if the disclosure classifies DCP as a material weakness and

	zero otherwise
NI	the net income in \$ millions
OANCF	the cash flows from operations in \$ millions
PPNET	the property, plant and equipment in \$ millions
PRICE	the share price at the event date in dollars
REPEAT	dummy variable that equals one if this is the second quarter in a raw to report DCP deficiency and zero otherwise
ROA	return on assets ratio
SALES	sales revenues in \$ millions
SALEG	sales growth measured as a percentage change in sales over the previous quarter

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