Does XBRL Adoption Constrain Managerial Opportunism in Financial Reporting? Evidence from Mandated U.S. Filers

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Evidence from Mandated U.S. Filers

ABSTRACT: In this study, we examine whether XBRL disclosure (i.e., interactive data submissions) reduces the magnitude of accounting accruals for firms during SEC mandated years. Using mandated XBRL filers, we first compare the magnitude of absolute discretionary accruals in the XBRL-adoption quarters with that in the non-XBRL-adoption quarters. This comparison shows that absolute discretionary accruals decrease significantly from the pre-XBRL-adoption period to the post-XBRL-adoption adoption period. This finding is in line with the view that the XBRL adoption constrains managerial opportunism in financial reporting in general and opportunistic accrual management in particular. Our analyses further reveal that the use of standardized official XBRL elements significantly reduces levels of discretionary accruals in the post-adoption period, while the use of customized extension elements does not. This result is consistent with the view that the former discourages opportunistic accruals management more effectively than the latter by improving transparency and comparability in financial reporting.

Keywords: XBRL (eXtensible Business Reporting Language); interactive data; official elements; extensions; earnings management; discretionary accruals.

Data Availability: The list of firms used in the study is available from the corresponding author upon request. All other data are available from sources identified in the paper.

I. INTRODUCTION

In December 2008, the Securities and Exchange Commission (SEC) mandated public companies to adopt eXtensible Business Reporting Language (XBRL) for corporate filings at the SEC as well as for financial reporting on corporate websites (SEC 2008). XBRL is an Interactive Data Electronic Application (IDEA) system with a standardized format for preparing, communicating, and exchanging financial information. The ultimate aim of the SEC is to completely replace the existing EDGAR filing system with XBRL.

This mandatory adoption of XBRL is an important disclosure regulation that can have a profound impact on financial reporting and public disclosure in the future: It is likely to enhance transparency in financial reporting and timeliness in data analysis and to increase the accessibility of firm-specific financial information by a variety of user groups, including outside investors, financial analysts, credit rating agencies, regulators, and other stakeholders. Stated another way, by adopting the interactive data format and eliminating costly manual procedures, XBRL allows the intermediate and/or end users of accounting information to acquire, process, and interpret financial statement information in a timelier and more accurate manner, which in turn helps them save costs associated with analyzing, processing, and/or consuming firm-specific information. More importantly, the use of XBRL for corporate filings provides different cross-sections of users from within the U.S. (as well as from around the world) with an equal opportunity to gain immediate access to a firm's past and current financial statements at virtually no additional cost, thereby offering a level-playing field to different market participants with differing endowments.

Since the mandatory adoption of XBRL in 2008, only a few studies have investigated the capital market consequences of this change in financial reporting. For example, Kim et al. (2012)

find that the mandatory adoption of XBRL reduces information risk in the equity market, especially when outside investors are faced with uncertain information environments. More recently, Li et al. (2012) report that the XBRL adoption leads to a decrease in the cost of equity capital and an improvement in the information environment as manifested in an increase in analyst coverage, an increase in analyst forecast accuracy, and an decrease in forecast dispersion during the post-XBRL-adoption period. These authors also find that market liquidity increases significantly during the post-XBRL-adoption period, compared with that in the pre-XBRL-adoption period, suggesting that XBRL contributes to lowering the information asymmetry among market participants. However, as the aforementioned studies focus on the economic consequences of XBRL adoption from the perspective of *external* users of accounting information such as investors and analysts, they have largely ignored its potential consequences from the perspective of *preparers* of financial statements or *internal* users.

Given the above background, the primary purpose of this study is to investigate whether and how mandatory XBRL adoption leads to changes in financial reporting strategies by corporate managers. Previous research shows that more extensive and organized disclosures enable outside stakeholders to exploit relevant information, allowing them to effectively monitor managerial behaviors (e.g., Berger and Hann 2007; Hope and Thomas 2008). Moreover, Lee et al. (2006) provide evidence that reporting format is associated with managers' propensity to engage in earnings management. Specifically, their study finds that firms identified as highly possible earnings manipulators are more likely to select the less transparent disclosure. Hodge et al. (2004) demonstrate that investors, who utilize a search-facilitating technology like XBRL, are better able to acquire and interpret information contained in financial statements, and make different investment decisions than investors who do not use the search-facilitating technology.

An important implication from the above discussions is that the XBRL adoption is likely to improve corporate transparency by improving information timeliness, comparability, and accessibility, even though it does not necessarily expand the information content of public disclosure or financial reporting.

In a more transparent information environment, investors are better able to decipher managerial opportunism in financial reporting, which causes managers to bear higher costs associated with opportunistic earnings management (e.g., increased litigation cost). This would, in turn, mitigate managerial incentives to opportunistically manage reported earnings (e.g., Bushman and Smith 2001; Jo and Kim 2007; Cohen et al. 2008; Huang and Zhang 2012). One can therefore expect that in an environment of XBRL-induced transparency, managers are likely to face more effective monitoring and scrutiny by outside information users. The above discussions imply that the use of XBRL, which improves transparency, accessibility, and timeliness, as well as intertemporal and cross-firm comparability of financial information, is likely to incentivize managers to engage less in earnings manipulation. This is so because under this enhanced information environment, outside investors and other stakeholders are better able to see through abnormal accrual choices, thereby discouraging managers to engage in opportunistic earnings management. We therefore propose and test the hypothesis that the mandatory XBRL adoption leads to a decrease in managerial opportunism in financial reporting.

XBRL can be of two different parts: (1) official, standardized XBRL elements; and (2) customized XBRL extensions. As will be further explained in the next section, the former facilitates comparability though it may limit reporting flexibility, whereas the latter will allow higher reporting flexibility but will deteriorate comparability across firms. In an extreme case of unrestricted use of customized extensions, investors would be required again to manually

reconcile the XBRL-based data across different companies. In other words, some positive impacts of official XBRL elements (e.g., enhancing timeliness in data analysis) are likely to be cancelled out by the negative impact of customized XBRL extensions when firms extensively use the customized extensions. We therefore propose and test another hypothesis that the impact of mandatory XBRL adoption on opportunistic earnings management is more pronounced when the standardized official XBRL elements are used more extensively than the customized XBRL extensions.

Briefly, our results reveal the following. First, using observations from non-XBRL adoption and XBRL adoption quarters for the mandated XBRL filers, we find that the magnitude of discretionary accruals decreases significantly from the pre-XBRL-adoption period to the post-XBRL-adoption period, suggesting that mandatory XBRL adoption leads to a significant decrease in the extent to which a firm engages in opportunistic earnings management. The finding is consistent with the view that the XBRL-induced information environment of enhanced transparency, timeliness, accessibility, and comparability facilitates external monitoring and scrutiny by outside users of accounting information, which in turn constrains managerial opportunism in financial reporting. Second, we also find that the effect of XBRL on deterring opportunistic earnings management is less pronounced for firms that use more customized extensions than standardized official elements. This finding supports the view that standardized official elements of XBRL discourage managers from engaging in accruals management, to a greater degree, than customized XBRL extensions.

Our study adds to the extant literature in several important ways. First, to our knowledge, this study is the first to examine the impact of mandatory XBRL adoption on constraining opportunistic earnings management. Second, our study contributes to the XBRL literature by

documenting its impact on financial reporting decisions or strategies made by *internal* users namely corporate managers or the issuers of financial statements, given that previous research focuses primarily on the impact of XBRL adoption on investment decisions made by *external* users such as investors and analysts. Third, we contribute to the disclosure choice literature by providing empirical evidence that corporate managers take into account different responses to different types or formats of disclosures (e.g., official versus extension elements), when making their disclosure strategies such as discretionary accrual choices.

Finally, our study also contributes to the accounting information system (AIS) literature by documenting systematic evidence on a hitherto unrecognized benefit associated with XBRL: XBRL adoption helps external users or outside stakeholders discipline internal users or preparers of financial statements in general, thereby constraining opportunistic earnings management. In this sense, our results provide useful inputs to the SEC's effort to expeditiously assess the benefits side of XBRL adoption. This is an important input to the SEC regulatory decision for the following reason: While there have been a wide range of concerns about both benefits and cost sides of XBRL adoption, little has been known about potential costs to corporate managers or internal users of XBRL implementation. From the perspective of corporate managers, XBRL adoption is costly because it makes external monitoring by outside investors less costly, and thus, makes managerial reporting opportunism more costly (or easier to be detected).

The paper proceeds as follows. Section II discusses the background of this study, and develops research hypotheses. Section III develops research hypotheses. Section IV describes the sample and data sources, and explains relevant research methods. Section V provides empirical results. Section VI concludes.

II. INSTITUTIONAL BACKGROUND AND PRIOR RESEARCH

On December 17, 2008, the U.S. Securities and Exchange Commission (SEC) approved a new rule that mandates the use of an interactive data format in financial reporting using XBRL (SEC, 2009). The XBRL-formatted financial statements and financial statement schedules must be submitted as an exhibit (the "interactive data file") to certain periodic filings, registration statements, and transition reports that contain financial reports. XBRL is the technological tool that registrants use to make their financial filings interactive and improve the ability of financial statement users to access and analyze financial data. Indeed, it assists knowledge capital in keeping up with financial capital as both are able to flow more quickly around the world. The SEC's web site[1] further states:

> "Interactive data allows the creation of documents that are machine-readable, so that computers can quickly extract the desired data. Think of every fact in an annual report, every number in a company's financial statements, as having a unique barcode that tells standard software what the item represents and how it relates to other items in the report. Interactive data "tags" all of the key facts in these large documents, so that software can instantaneously recognize them and serve them up to the investor.....[With this interactive data], investors can immediately pull out exactly the information they want, and instantly compare it to the results of other companies, performance in past years, industry averages" (n.p).

Further the XBRL adoption can improve accuracy in public disclosures and provide external users with greater speed and flexibility in information processing. More specifically, XBRL is known to shorten overall processing time and enhance information exchange by providing a standardized (official) format to prepare, publish, and exchange business information. In XBRL, all information is tagged to identify each individual item of data using machine-readable XBRL elements defined in XBRL taxonomies. Each taxonomy defines individual reporting concepts (e.g., total assets) and the relationships between concepts (e.g., the human-readable label of each concept and how values of concepts should sum up from one to

[1] http://www.sec.gov/spotlight/xbrl/interactivedata.htm

another). In fact, financial statements or other business reports of a firm are tagged with standardized XBRL elements, which can increase readability, comparability, timeliness, and accessibility of financial statements for users at a relatively low or no extra preparation cost (Hoffman and Strand 2001; XBRL International 2007; XBRL US 2009).

Christopher Cox, former Chairman of SEC (March 3, 2006), also stated that the use of XBRL for financial reporting helps the Division of Enforcement to catch illegal behaviors[2] in many corporations which would have previously gone undetected. As such, the XBRL-induced standardization is likely to facilitate the role of the SEC as a market watchdog.[3] The format consistency of XBRL also improves information accuracy. Previous research shows that data manipulation happens when firms need to re-position the output from their financial systems in order to meet the needs of diverse users (e.g., Huang and Zhang 2012). However, once information is entered with XBRL, the same information can be "rendered" for a variety of purposes and for different user groups as a printed financial statement, an HTML document for a Web site, an EDGAR filing file, a raw XML file, or a specialized reporting format. As a result, XBRL can ensure that the right information is classified properly at each step where it is implemented, thereby increasing transparency, timeliness, comparability and accessibility of financial information. For example, the SEC's Deputy Chief Accountant, Scott Taub, claimed that:

> "Over half of recent public company restatements were the result of misapplying basic accounting rules. Only about 5% of restatements were due to deliberate errors, or to fraud. So there is an enormous opportunity for automation to help corporate finance staffs

[2] Firms that do not provide the required interactive files, or that fail to post the required data on their web site, will be deemed 'not current' with their Exchange Act reports, and will not be eligible to use short form registration statements on Forms S-3, F-3, or S-8, or to incorporate information under Forms S-4 or F-4. In addition, these firms will not be able to utilize the resale exemption safe harbor provided by Rule 144 (SEC 2009, pp. 106-107). Thus, interactive data submissions are subject to modified liability treatment under the federal securities laws during the first two years of required XBRL reporting.

[3] www.sec.gov/news/speech/spch030306cc.htm

> and auditors avoid simply missing things—and to avoid the kinds of unintentional mistakes that can have big consequences (n.p.)."[4]

As alluded in the above, the use of XBRL is therefore likely to reduce data manipulation in general and earnings manipulation in particular.

Greater transparency, improved accessibility and timeliness of public disclosures, along with enhanced comparability of financial data over different periods and across markets and/or industries can help financial statement preparers uncover anomalies, thereby allowing them to prepare updated reports with corrected information in a timelier fashion, while reducing lags in external monitoring by outside users (Gray and Miller 2009; Premuroso and Bhattacharya 2008; Alles and Piechocki 2012). McNamar (2003) notes if Enron had filed in XBRL, its reported revenues, cash flows from operations, and profits would have been compared against industry standards, at which point its abnormally high growth rate and the growth rate of its purported cash flows from operations would have been flagged for an SEC staff review. As a result, XBRL can contribute to lowering investor-perceived level of information uncertainty about companies and information risk associated with their investments, thereby facilitating outside investors' decisions to invest in companies concerned.

Prior Research on XBRL

As the SEC decision to mandate XBRL adoption for financial reporting is a recent regulatory event, only limited empirical evidence has thus far been available concerning the implications and economic consequences of XBRL adoption. One strand of research in the area of AIS focuses on voluntary filers before the mandatory adoption year, and compares differences between voluntary XBRL filers and no files with respect to such firm-specific characteristics as corporate governance (Premuroso and Bhattacharya 2008), the accuracy of their initial XBRL

[4] http://www.sec.gov/news/speech/2006/spch120506cc.htm

filings (Bartley et al. 2010), and the information content of their filings (Efendi et al. 2011).

Another strand of research focuses its attention to the impact of XBRL on the economic or capital market consequences. A few recent empirical studies show that XBRL plays a role of alleviating the information asymmetry arising from incompatible reporting formats in capital markets (Bergeron 2003; XBRL International 2007). Pinsker and Li (2008) find that the voluntary adoption of XBRL is associated with an increase in reporting transparency. In a related vein, Hodge et al. (2004) argue that investors who used a search-facilitating technology like XBRL are better able to acquire relevant financial information in a timelier manner, and to process and interpret the information in a more accurate fashion, compared with investors who did not use the search-facilitating technology. As a result, investment decisions made by the former are different from those made by the latter, suggesting that search-facilitating technology like XBRL is of information value, and its implementation enhances transparency, timeliness, accessibility and comparability of firm-specific financial information.

Since the mandatory adoption of XBRL in 2008, only a few studies have begun to investigate the capital market consequences of mandatory XBRL adoption: Kim et al. (2012) find that the mandatory adoption of XBRL reduces the information asymmetry and the associated information risk in the equity market through its impact on the improved accessibility and transparency. A subsequent study by Li et al. (2012) reports that mandatory XBRL adoption is associated with a decrease in the cost of equity capital and an improvement in the information environment as manifested in an increase in analyst coverage, a decrease in analyst forecast error and dispersion, and an increase in market liquidity in the post-XBRL-adoption period. Their findings suggest that mandatory XBRL adoption lowers the information asymmetry among market participants.

It should be noted, however, that the aforementioned studies focus on the economic and informational consequences of XBRL adoption from the perspective of *external or outside users* of accounting information such as investors and analysts, and thus, have largely ignored its potential consequences from the perspective of *internal users* or preparers of financial statements.

III. HYPOTHESIS DEVELOPMENT

Corporate Transparency and Reporting Opportunism

The information asymmetry or lack of transparency is a necessary condition for earnings management or information obfuscation (Schipper 1989; Hunton et al. 2006; and Lee et al. 2006; Jo and Kim 2007). This is because, in the world of perfect transparency or no information asymmetry, outside users of accounting information can detect opportunistic earnings management, while incurring virtually no extra cost, and thus managers have no incentive to manipulate earnings numbers. In a similar vein, one can expect that the extent of a firm's engagement in opportunistic earnings management decreases with the level of transparency in a firm's information environment.

Early evidence by Subramanyam (1996) suggests that managers use discretionary accrual choices as a means to signal their private information about a firm's future prospect to the market. However, accrual accounting is vulnerable to managerial discretion over accrual choices because managers can exercise professional judgements allowed under the Generally Accepted Accounting Principles (GAAP) for their private gains. Voluminous research consistently shows that managerial discretion allowed in the accrual recognition process is an important source of managerial opportunism in financial reporting (e.g., Cheng and Warfield 2005; Dichev and Skinner 2002). This managerial judgement process is hardly observed by investors, because

market participants observe only 10-Q or 10-K filings which rarely contain information about the accrual recognition process. For this reason, market participants often fail to incorporate this information into firm valuation, although the information about accruals is of valuation relevance (Sloan 1996). Enhanced disclosures increase transparency or alleviate the information asymmetry between managers and outside investors, and thus, reduce incentives to manage earnings. This is because increased transparency helps investors detect earnings management. An important implication from the above discussion is that coprate managers tend to engage less in opportunistic earnings management in a transparent information environment than in an opaque information environment.

The Impact of XBRL Adoption on Opportunistic Earnings Management

The use of XBRL for public disclosures or the SEC filings brings about a more transparent information environment. The increased transparency allows market participants to more effectively monitor and scrutinize managerial opportunism in financial reporting at a cheaper cost (Huang and Zhang 2012), thereby facilitating the disciplinary role of transparent disclosures at the firm level. Their study suggests that, to the extent that it increases the transparency in the market, mandatory XBRL adoption discourages managers from engaging aggressively in opportunistic earnings management. Recent studies by Kim et al. (2012) and Li et al. (2012) provide evidence that mandatory XBRL adoption increases firm-level transparency (i.e., lowers information asymmetry). We therefore predict that the extent of opportunistic earnings management decreases from the pre-XBRL-adoption period to the post-XBRL-adoption period.

Further, Hodge, Kennedy, and Maines (2004: HKM) provide experimental evidence that XBRL influences financial statement users' ability to acquire and integrate related financial

information. In particular, by facilitating comparisons across firms, XBRL makes managers' financial reporting choices more comparable and transparent, and highlights cross-sectional differences in managers' accounting choices. Their study suggests that XBRL improves the transparency and comparability of managers' accrual choices. Given the well-established link between transparency and the extent of earnings management, the HKM results lead us to predict, anew, that mandatory XBRL adoption leads to a decrease in the extent of opportunistic earnings manipulation.

Moreover, another stand of research also provides evidence suggesting that earnings reports are less likely to be manipulated for firms that disclose more information on a consistent basis, because the increased transparency lowers the information asymmetry and helps investors detect opportunistic earnings management (Hirst and Hopkins 1998; Hunton et al. 2006; and Lee et al. 2006). Using 82 publicly traded property-liability insurers, Lee et al. (2006) find that their reporting choices are a reflection of their proclivity toward earnings management as well as their level of disclosure quality: Insurers that have a tendency to manage earnings through realized securities' gains and losses are more likely to report comprehensive income in a statement of equity which is less transparent to users than in a statement of earnings which is more transparent to users. Hunton et al. (2006) also show that more transparent financial reports contain less earnings management since rational managers would be less likely to manipulate earnings if investors were better able to detect and correct earnings manipulation based on clearly presented accounting information. Stated another way, enhanced disclosure or improved transparency, for example, through mandatory XBRL adoption, makes it easier and less costly for outside users to detect opportunistic earnings management. This in turn increases the cost associated with accrual-based earnings management, as evidenced by Cohen et al. (2008). The above discussions

lead us to predict, anew, that to the extent that mandatory XBRL adoption increases transparency, it discourages managers from engage in opportunistic accrual management.

To recap, this study maintains that mandatory XBRL adoption for 10-Q and 10-K filings leads to enhance transparency with respect to a firm's financial information, and improve accessibility of a firm's financial information by outside stakeholders and timeliness in data analysis, and facilitate inter-temporal and cross-sectional comparability of financial data. As a result, the mandatory XBRL adoption contributes to establishing a level-playing field to different market participants with differing endowment; even non-sophisticated investors may find it easier or less costly to detect opportunistic earnings manipulation. This means that under the XBRL-induced information environment, managers are likely to bear higher detection risk when they engage more in accrual-based earnings management. Stated another way, mandatory XBRL adoption enhances the ability of outside (in particular, non-sophisticated) investors to monitor and scrutinize managerial opportunism in financial reporting; it also allows the SEC to examine any inconsistency over time and across firms in a speedy manner, thereby reducing the regulatory cost of detecting errors, irregularities and frauds. In this regard, the former SEC chairman, Cox, stated in the interview with the editor of *Journal of Accountancy* (March 2007):

> "First, what I call interactive data (XBRL) is going to be a hallmark of our much-improved and qualitatively superior disclosure for ordinary investors. Second, with respect to the SEC's internal work in the areas of corporation finance, market regulation, investment management, examinations and enforcement, and accounting, interactive data (XBRL) is going to help us do a much better job of analyzing the massive amounts of information that are filed with the commission (n.p.)."[5]

Under the maintained hypothesis that mandatory XBRL adoption improves transparency, timeliness, accessibility and comparability of financial information, we predict that the use of XBRL for SEC filings will constrain managers' ability to manipulate earnings via discretionary

[5] http://www.journalofaccountancy.com/Issues/2007/Mar/GettingItRightChristopherCoxInterview.htm

accrual choices. To provide empirical evidence on this unexplored issue, we test the following hypothesis in alternative form:

> **H1:** The extent of a firm's involvement in opportunistic accrual management decreases significantly from the pre-XBRL-adoption period to the post-XBRL-adoption period, all else being equal.

Differences in Standardized Official Elements and Customized Extensions

When the use of XBRL is mandated for the SEC filings, each piece of business and financial data is tagged using a standardized official element in an agreed-upon taxonomy (i.e., the official elements). This element (or tag) is machine-readable and the content and structure of the information are defined by the SEC.[6] The standardized elements for XBRL filings potentially reduce investors' information acquisition cost, and enable them to improve their ability to monitor and scrutinize financial reports for detecting accounting irregularities and errors. First, the official XBRL elements provide extraction of the information that users acquire in a more timely manner, and thus, facilitate integrating and evaluating firm-specific (business and financial) information without the laborious and costly process of manual re-entry (Hodge et al. 2004; Hoffman and Strand 2001; SEC 2010a; XBRL US 2009). Second, the use of standardized XBRL elements enables firms to achieve consistency and accuracy of their public disclosure in a timely and confident manner, for example, by comparing particular items in MD&A and in the current 10-Q side by side with those in prior 10-Q, or by examining what their peers and competitors have mentioned about similar items.

The standardized XBRL elements would certainly meet the comparability needs of investors, but it could limit the reporting flexibility of firms (SEC 2010b; XBRL US 2010). Thus,

[6] For example, the SEC explains standardized official elements as follows: *"*Think of every fact in an annual report, every number in a company's financial statements, as having a unique barcode that tells standard software what the item represents and how it relates to other items in the report. Interactive data 'tags' all of the key facts in these large documents, so that software can instantaneously recognize them and serve them up to the investor." (http://www.sec.gov/spotlight/xbrl/interactivedata.htm).

if a requisite tag does not exist, an extension is allowed but within a well-defined framework, so that no extension corrupts relations among other financial statement items. However, the use of customized taxonomy extensions as company-specific elements could grow so common that they would deteriorate the comparability of inter-company data. For example, what a firm identifies in its traditional format financial statements as "operating revenues" may be associated with an element that has "net revenues" as the standard label. In this situation, a firm needs to change or extend the standard label to become "operating revenues" when it tags that disclosure with the element. According to XBRL US (2009), an analysis of more than 450 XBRL documents shows that most company financials included extensions for 7% of their statement elements, but fit rates in the interval from 0 to 52%. In a similar vein, Debreceny et al. (2011) investigate extensions to the 2009 U.S. GAAP taxonomy in the first year of XBRL filings under the SEC's mandatory XBRL filing program to assess the impact of extensions on the quality and comparability of the XBRL-tagged data. Their analysis finds that more than 40% of the extensions were unnecessary. With the unrestricted use of customized extensions, automated comparability would be impaired and investors would be required again to manually reconcile the tagged data (Boritz and No, 2009; Debreceny and Farewell, 2010). Such customized extensions reduce standardization and cross-firm comparability, and make interoperability more difficult, further raising a concern about potential consequences of deviation of a firm's reporting conventions from official taxonomies.

Drawing upon the above discussions, we expect the benefit of using XBRL for the SEC filings (e.g., increased transparency, improved comparability, more effective monitoring or disciplinary action of managerial opportunism) to decrease, as firms increasingly make use of

customized extensions in terms of standardized official elements. To provide systematic evidence on this unresolved issue, we test the following hypothesis in alternative form:

H2: The extent of a firm's involvement in opportunistic accrual management decreases with the number of standardized official XBRL elements, while it increases with, or remains insensitive to, the number of customized XBRL extension elements, all else being equal.

IV. RESEARCH METHODS

Data Sources

We first use the monthly archived EDGAR RSS (Really Simple Syndication) feeds,[7] the program obtained for all interactive 10-Q and 10-K filings submitted to the SEC. We compare our investigation into quarterly 10-Q with that into annual 10-K filings. We make this comparison for the following reasons. First, we rely upon discretionary accruals to detect earnings management, and the information about accrual choices is typically not available to investors until 10-Q or 10-K filings after quarterly earnings figures are announced. Second, quarterly earnings announcements usually precede the 10-Q filing date, and therefore stock prices at the filing date have likely already adjusted to the information contained in the earnings future alone. Indeed, Campbell et al. (2001) show that the market does not respond to EDGAR 10-Q filings at all, whereas there is only weak evidence that the market reacts to EDGAR 10-Q filings (Griffin 2003). On the other hand, accounting research documents significant market reaction to EDGAR 10-K filings after controlling for the concurrent release of earnings information (Asthana and Balsam 2001; Qi et al. 2000) because of its comprehensive and incremental information contained therein (Healy and Palepu 1993), and the way in which the EDGAR system makes this incremental information more accessible to investors when compared to the paper 10-K filings. It is interesting, nonetheless, that so little evidence has been

[7] http://www.sec.gov/Archives/edgar/monthly/

amassed about the impact of, purportedly, the two most important SEC filings on corporate transparency, even after several decades of research.

Sample: Interactive Data Submissions by the Phase 1 versus Phase 2 Groups

Following the recommendation of Kim et al. (2012), we further capture and verify the information about each interactive data submission (e.g., EDGAR URL, company name, form type, filing date, and additional company information such as fiscal year end, SIC, and CIK) using EDGAR URL and EDGAR Dashboard[8], resulting in 7,777 interactive data submissions from 1,712 firms. We restrict our focus to mandatory XBRL adopters for the first and second periods.[9] To identify firms on the Phase 1 and Phase 2 groups, we calculate the worldwide public common equity float with respect to the XBRL rule as explained below (SEC, 2009, pp.20-29):

- In Phase 1, domestic and foreign large accelerated filers using U.S. Generally Accepted Accounting Principles (GAAP), and having a worldwide public float of greater than $5 billion at the end of the second fiscal quarter of their most recently completed fiscal year, are subject to interactive data reporting for their first quarterly report on Form 10-Q or annual report on Form 20-F or Form 40-F for fiscal periods ending on or after June 15, 2009.

- In Phase 2, all other domestic and foreign large accelerated filers using U.S. GAAP, having a worldwide public float at least $700 million at the end of the second fiscal quarter of their most recently completed fiscal year, are subject to interactive data reporting for their first quarterly report on Form 10-Q or annual report on or after June 15, 2010.

From our initial sample of 7,777 interactive data submissions from 1,712 firms, we eliminate 4,899 submissions because of missing values in *Compustat* and *IBES*. We also excluded 476 from the financial service industry (SIC 6000-6999) and utility industry (SIC 4900-4949) because they are governed by different accounting rules. We removed 675 submissions that had less than the 1% of discretionary accruals deflated by total assets. Finally

[8] http://edgardashboard.xbrlcloud.com/edgar-all-index.html

[9] We mainly focus on Phase 1 and Phase 2, because there are only a limited numbers of submissions in Phase 3 (at the time of our data collection). Moreover, examining Phase 3 eliminates our ability to use a control group of non-XBRL adopters.

we obtained 1,727 firm-quarter observations from 674 public companies that adopted XBRL with their discretionary accruals large than the 1% of total assets. The final sample consists of 377 firm-quarter observations (e.g. 234 from 10-Q vs. 143 from 10-K) of Phase 1 and 1,350 firm-quarter observations (e.g. 820 from 10-Q vs. 530 from 10-K) of Phase 2. Panel A of Table 1 summarizes our data source, sample selection procedure, and the sample distribution by quarters.

Panel B of Table 1 provides a summary of the sample distribution by two-digit SIC industry. The 1,727 XBRL firm-quarters cover 10 industry groups. Among them, the Metal, Machinery and Equipment, and Instruments industry has the highest number of firms with XBRL disclosure, followed by the Business Service, Auto Repair, Recreation, Chemicals, Petroleum and Coal industries; and finally Mining, Oil and Gas industries.

[Insert Table 1]

Sample Periods: Pre-XBRL and Post-XBRL Periods

By using firms in the post-adoption period as our treatment sample, and the same firms in the pre-adoption period as our control sample, we attempt to rule out a possibility or an alternative explanation that our observed effect arises from uncontrolled firm characteristics rather than from the mandatory XBRL adoption. To effectively control for potential compounding effects of firm characteristics, we match the quarterly or annual reporting period of each interactive data submissions to the firm's corresponding quarter two years prior to the date of XBRL adoption.[10] Thus, we compare the XBRL filing effect (captured by the magnitude of abnormal accruals) between non-XBRL and XBRL adoption quarters (i.e., 1,727 pre-XBRL submissions vs. 1,727 post-XBRL submissions).

Measurements of Opportunistic Earnings Management

[10] We also conduct the analysis using 4 years prior to the date of the XBRL adoption, and all results hold in Table 7.

We measure the extent of a firm's engagement in opportunistic earnings management using three alternative approaches, which is: (i) the absolute magnitude of discretionary accruals estimated by the modified Jones model as proposed by Dechow et al. (1995), denoted by |*DAC_MJ*|*;* (ii) the absolute magnitude of discretionary accruals estimated by the Kothari et al. (2005) ROA-matched approach, denoted by |*DAC_ROA*|; and (iii) the standard deviation of the error terms of the model suggested by Dechow and Dichev (2002), denoted by *DAC_DD*.

In estimating |*DAC_MJ*| and |*DAC_ROA*|, we deflate unadjusted accounting amount by total assets at the end of previous quarter. First, we employ the modified Jones model to estimate the discretionary accruals. For each two-digit SIC industry and year with at least 10 observations, we estimated the cross-sectional version of the modified Jones model as specified below:

$$TAC_{jt} / TA_{jt-1} = \alpha_1[1/TA_{jt-1}] + \alpha_2[(\Delta REV_{jt} - \Delta REC_{jt}) / TA_{jt-1}] + \alpha_3[PPE_{jt} / TA_{jt-1}] + \varepsilon_{jt} \qquad \text{(A1)}$$

where, for firm *j* and year *t* (or *t* - 1), *TAC* denotes total accruals (income before extraordinary items minus cash flow from operations); *TA, ΔREV,* and *PPE* represent total assets, changes in net sales, and gross property, plant, and equipment, respectively; and ε is the error term. Our first measure of opportunistic earnings management, denoted by |*DAC_MJ*| is the absolute value of the difference between actual total accruals deflated by lagged total assets and the fitted values of the above modified Jones model.

Second, we also estimate discretionary accruals using the performance-matched approach suggested by Kothari et al. (2005). Following the procedures proposed by Kothari et al. (2005), we obtain ROA-adjusted DAC, by estimating the Kotari et al. (2005) model, which is the modified Jones model in Eq. (A1) after adding the lagged return on assets (ROA). We then compute performance-matched abnormal accruals, |*DAC_ROA*|, by taking the absolute value of

the difference between actual total accruals deflated by lagged total assets and the fitted values of the Kothari et al. (2005) model.

Finally, we also use the accruals quality measure suggested by Dechow and Dichev (2002). They suggest a measure of accruals quality based on the extent to which accruals map into cash flow in the prior, current, and future period. The standard deviation of the residuals of the following model is the measure of accruals quality:

$$\Delta WC_{jt} = \alpha_1 + \alpha_1 CFO_{jt-1} + \alpha_2 CFO_{jt} + \alpha_3 CFO_{jt+1} + \varepsilon_{jt} \quad \text{(A2)}$$

where, for firm *j* and year *t* (or *t* - 1), ΔWC denotes the change in working capital form year *t-1* to *t* (calculated by income before extraordinary items minus net cash flows from operating activities); *CFO* represents cash flows from operations; and ε is the error term. We estimate the industry and year-specific regression using the two-digit SIC and fiscal year. The standard deviation of the error terms for prior four quarters is used as the proxy of accruals quality. Note here that our measure captures only the quality of current accruals, excluding the quality of long-term accruals. In Eq. (A2), we exclude changes in long term accruals from the dependent variable, because mandatory XBRL adoption is more likely to influence short-term accruals rather than long-term accruals during the (relatively short) two-year post-XBRL period.

Model Specification and Variable Definitions

Our first hypothesis (H1) is concerned with the effects of mandatory XBRL adoption on the extent of a firm's involvement in opportunistic earnings management in the post-XBRL period against the same effect in the pre-XBRL periods (a corresponding non-XBRL quarter two years prior to the XBRL quarters). To test H1, we specific the following regression model:

$$EM_t = \alpha_1 + \alpha_2 DXBRL_t + \alpha_3 LOSS_t + \alpha_4 BIG_t + \alpha_5 OPN\_IC_t + \alpha_6 SIZE_t + \alpha_7 MB_t + \alpha_8 C\_SALES_t + \alpha_9 LEV_t + \alpha_{10} CASH_t + \alpha_{11} SUR + \alpha_{12} Industry + \varepsilon_t \quad (1)$$

In the above, *EM* refers to |*DAC_MJ*|, |*DAC_ROA*| or *DAC_DD*. The variable of interest is an indicator variable, *DXBRL*, which equals 1 for the XBRL filing quarters during which firms are mandated to compile their financial statements in the XBRL format, and 0 otherwise. Our hypothesis H1 translates as a negative coefficient on *DXBRL* ($\alpha_2 < 0$), which implies that mandatory XBRL adoption leads to a decrease in opportunistic earnings management during the post-XBRL period. Stated another way, a negative coefficient on *DXBRL* suggests that firms engage, to a lesser degree, in opportunistic earnings management in the post-period than they do in the pre-XBRL period.

To isolate the effect of XBRL adoption on earnings management from the effect of other variables, we control for firm-specific variables that are known to influence a firm's accrual choices. We include *LOSS* in Eq. (1) to control for potential differences in earnings management between loss and profit firms (Defond and Jiambalvo 1991). The variable *LOSS* is an indicator variable that equals 1 for firms with income before extraordinary items being less than zero, and 0 otherwise. Several studies show that Big 4 auditors are more effective than non-Big 4 auditors in constraining opportunistic earnings management (Becker et al. 1998; Krishnan 2003). We include the Big 4 indicator, *BIG*, to control for the effect of auditor brand name at the national level. We include an internal control indicator, *OPN_IC*, to isolate the impact of XBRL adoption from the effect of internal control effectiveness on earnings management. The variable *OPN_IC* is an indicator variable that equals 1 for firms with no material weakness in internal controls, and 0 otherwise. We include *SIZE* to control for the firm size effect (e.g., Dechow and Dichev 2002). As in many other studies (e.g., Kothari et al. 2009), we measure *SIZE* by the natural log of

market capitalization at the end of the quarter. The variables *MB* and *C_SALE* are included to control for firm growth. *MB* refers to market-to-book ratio at the end of each quarter, and *C_SALES* is a measure of changes in sales in period *t* divided by sales in period *t-1*. The variable *LEV* is included because highly levered firms may have greater incentives for earnings management due to their concerns of debt covenant violations (Becker et al. 1998; DeFond and Jiambalvo 1994). The variable *LEV* is measured by the ratio of long-term liabilities to total assets. We include *CASH* to control for the potential correlation between accruals and cash flows (Kothari et al. 2005). The variable *CASH* is measured by the ratio of cash flow from operation deflated by beginning total assets. We also include *SUR*, which is the earnings surprise estimated by actual EPS minus the mean analysts' forecast divided by stock price at the end of fiscal year. Finally, the industry indicator, *Industry*, is included to control for industry fixed effects.

Our second hypothesis (H2) is concerned with whether the effect of XBRL on constraining opportunistic earnings management is stronger for standardized official XBRL elements than for customized XBRL extension elements. To test H2, we estimate the following regression:

$$EM_t = \alpha_1 + \alpha_2 OFF\_E_t + \alpha_3 EXT\_E_t + \alpha_4 LOSS_t + \alpha_5 BIG_t + \alpha_6 OPN\_IC_t + \alpha_7 SIZE_t + \alpha_8 MB_t + \alpha_9 C\_SALES_t + \alpha_{10} LEV_t + \alpha_{11} CASH_t + \alpha_{12} SUR + \alpha_{13} \sum Industry + \varepsilon_t \quad (2)$$

In Eq. (2), the variables of interest are *OFF_E* and *EXT_E* which represent the numbers of official elements and extension elements, respectively, used for each submission in each quarter, and all other variables are as explained in relation to Eq. (1).

In estimating both Eqs. (1) and (2), we winsorize all continuous variables at the 1st and 99th percentiles of the distributions of their distributions to alleviate a possibility that our findings

are driven by the presence of extreme outliers. Throughout all regressions in the paper, we report t-values using standard errors that are corrected for clustering at the firm level.

Since XBRL allows firms to create their own taxonomy extensions in the Phase 2 period (SEC 2009), we estimate Eq. (2), using the sample of only post-XBRL submissions (e.g. zero for both *OFF_E* and *EXT_E* in the pre-XBRL period). Note in Eq. (2) that we use raw numbers of official and extension elements for post-XBRL submissions to capture the information quality of XBRL filings.[11] The larger is the number of official elements, the more standardized is the disclosure in each XBRL filing with the SEC, and thus, the higher is the user value of XBRL disclosure, because the standardized XBRL disclosure are more likely to improve comparability and timeliness in data analysis than the customized extensions. In Eq. (2), the larger extension elements (higher value of *EXT_E*) mean that each submission uses more customized extensions. As we predicted in H2, standardized XBRL elements are better able to help outside investors monitor corporate managers, and thus more effectively constrain opportunistic earnings management, while customized extension elements deter outside investor from monitoring managerial opportunism in financial reporting effectively. We therefore expect a negative coefficient on *OFF_E* because official elements would be more effective at reducing managerial opportunism in financial reporting, while we expect a positive coefficient on *EXT_E* because the extension elements, which are not governed by SEC, would not be useful or would be less useful at disciplining the reporting opportunism.

[11] We also use the ratio of the number of extension elements in each submission to the number of total elements, the portfolio , the results are qualitatively the same (see additional tests).

V. EMPIRICAL RESULTS

Univariate Tests

Panel A of Table 2 presents descriptive statistics for the full sample, separately, for non-XBRL-adoption and XBRL- adoption quarters (pre- vs. post-XBRL period). Note here that we first identify 1,727 post-XBRL submissions, and then, the same number of (pseudo) pre-XBRL submissions for the same firm for the corresponding two years (e.g. eight quarters) prior to the date of XBRL submissions to the SEC. As shown in Table 2, |*DAC_MJ*|, |*DAC_ROA*|, and *DAC_DD* are significantly lower in its mean and median during the post-XBRL period than during the pre-XBRL period. Mean (median) of |*DAC_MJ*|, |*DAC_ROA*|, and *DAC_DD* is 0.054, 0.052, and 0.029 (0.039, 0.038, and 0.021) in the pre-XBRL period, while it is 0.041, 0.040, and 0.024 (0.027, 0.027, and 0.018) in the post-XBRL period. The results of t- and z-tests reveals that these mean and median differences, respectively, are statistically significant at less than the 1% level, suggesting that that mandatory XBRL adoption constrains managerial opportunism in financial reporting via discretionary accrual choice.

With respect to control variables, we find that firms are less likely to report negative profit (*LOSS*) in the post-XBRL period than in the pre-XBRL period. We also note that in the post-XBRL period, firms tend to be larger (*SIZE*), have higher growth potential (*MB*) and higher sales growth (*C_SALES*), and tend to experience higher earning surprises (*SUR*), compared with the levels in the pre-XBRL period. We find no significant change from the pre- and the post-XBRL period with respect to other control variables.

Panel B of Table 2 presents descriptive statistics for our three proxies for managerial opportunism in financial reporting, separately, for the Phase 1 and Phase 2 samples and also, separately, for the 10-Q and 10-K submissions. With respect to the results in Panel B, Table 2,

the following are noteworthy. First, we find that the magnitude of absolute discretionary accruals (measured by |*DAC_MJ*| and |*DAC_ROA*|) and the quality of accounting accruals (captured by *DAC_DD*) are, overall, significantly higher in their mean and median values for the post-XBRL-adoption observations than for the pre-XBRL-adoption observations. Second, we find that the mean and median differences in absolute discretionary accruals and accrual quality is more significant for 10-K submissions than for 10-Q submissions, particularly for the Phase 1 sample. Finally, we also note that the results of univariate tests for mean and median differences are, overall, much stronger for the Phase 2 sample than for the Phase 1 sample.

[Insert Table 2]

Panel A of Figure 1 illustrates over-time trends for mean values of absolute total accruals, discretionary accruals, normal accruals, and cash flows from operations, denoted by |*DAC-MJ*|, |*DAC_ROA*|, *DAC_DD,* and |*CFO*|, respectively, where discretionary and normal accruals are computed using the modified Jones model. In Panel B of Figure 1, we illustrate over-time trends for the median values of |*DAC_MJ*|,*DAC_ROA*|, *DAC_DD,* and |*CFO*|. As depicted in Figure 1, we observe no change in overtime trends from the pre-XBRL period to the post-XBRL period with respect to both mean and median of *CFO*. Consistent with our results presented in Table 2, however, we clearly observe a decreasing trend in |*DAC_MJ*| and |*DAC_ROA*| and DAC_DD from the pre-XBRL period to the post-XBRL period. Simply put, cash flows from operations and normal accruals remain stable even after the mandatory adoption of XBRL. In contyrast, the magnitude of absolute discretionary accruals and the quality of accounting accruals tend to decrease from the pre-adoption period to the post-adoption, suggesting mandatory XBRL adoptions deter managers from engaging in opportunistic earnings management.

[Insert Figure 1]

Multivariate Regressions

In Sections A, B and C of each panel, we measure the extent of earnings management, using three different proxies, i.e., |*DAC_MJ*|, |*DAC_ROA*|, and *DAC_DD*, respectively. As shown in Panel A of Table 3, we find that the coefficient on *DXBRL* is insignificant for the sample of Phase 1 (accelerated) 10-Q filings, but is significant for 10-K filings (as in Sections A and B). This is in part due to the fact that the amount of information required for the SEC filings is greater for 10-K filings than for 10-Q filings. Stated another way, 10-K filings generally contain more information, and thus, enable outside investors to more effectively constrain reporting opportunism than 10-Q filings.

In Panel B where we use the sample of Phase 2 filers, however, we find that the coefficients on *DXBRL* are negative across all three sections, and are highly significant at less than the 1% level. This significantly negative coefficient on *DXBRL* across all cases for a broader sample of Phase 2 filers is consistent with our hypothesis H1, suggesting that mandatory XBRL adoption causes a decrease in opportunistic earnings management. The results are consistent with the view that the improved transparency, the enhanced accessibility of financial data by different users with differing endowments (which facilitates a level-playing field), and the improved timeliness and comparability in data analyses, taken together, enable outside stakeholders to more effectively monitor and scrutinize managerial opportunism in financial reporting. As a result, mandatory XBRL adoption leads to an increase in potential costs associated with opportunistic accrual management (e.g., potential litigation cost), which in turn motivates managers to engage less in opportunistic earnings management via discretionary accrual choices.

Overall, the less significant results for the sample of Phase 1 filers than for the Phase 2 filers may be interpreted as follows: The Phase 1 period covers the period of only less than a year from December 2008 to June 2009 since the XBRL implementation. As such, outside investors and other external stakeholders may simply need more time to familiarize themselves with XBRL. In a related vein, we note that the SEC announced the mandatory XBRL adoption in the same year of the Phase 1 implementation. This means that the Phase 1 filers might have only a limited time to undertake significant changes in their disclosure policies in response to heightened monitoring and scrutiny by outside investors in the post-XBRL period. In other words, it may take a longer period for potential benefits from mandatory XBRL adoption to be fully realized. We also note that the number of XBRL filers in the Phase 1 sample is relatively small, which may adversely affect the statistical power for estimated regression coefficients.

[Insert Table 3]

Panels A and B of Table 4 shows the effects of official (*OFF_E*) and extension (*EXT_E*) elements on accrual-based measures of earnings management (e.g., |*DAC_MJ*|, |*DAC_ROA*|, and *DAC_DD)* for the samples of Phase 1 and Phase 2 filers, respectively. Similar to the results in Table 3, we find that the results using the Phase 2 filers (Panel B) are, overall, more significant than those using the Phase 1 filers (Panel A). As shown in Panel B, we find that the coefficients on *OFF_E* are negative across all six cases, and are significant for all regressions when the relatively large sample and lengthy sample period of XBRL submissions for Phase 2 is used, while they are insignificant when the relatively small sample and short sample period of Phase 1 is used. Interestingly, we find that the coefficients on *EXT_E* are positive in Phase 2.

Overall, the above findings are in line with our H2, suggesting that the extent of opportunistic accrual management tends to decrease with the number of standardized official

elements (*OFF_E*) in XBRL submission, while it increases with (or at best remains marginally sensitive to) the number of customized extension elements (*EXT_E*) in XBRL submissions. In short, our results presented in Table 4 reveal that, compared with customized XBRL extensions, the use of official XBRL elements is more effective for deterring managers from engaging in aggressive earnings management. Stated another way, we provide evidence suggesting that standardized official elements is better able to facilitate external monitoring or scrutiny of managerial reporting opportunism by outside stakeholders than customized extension elements. In addition, the significantly positive coefficient observed on *EXT_E* for the Phase 2 sample suggests that the excessive use of extension elements may not help outside investors and/or other external stakeholders monitor managerial reporting opportunism.

[Insert Table 4]

Further Analysis

Use of alternative control sample

As explained earlier, our Phase 1 (Phase 2) test sample includes mandatory XBRL submissions for most recent eight quarters subsequent to the mandatory XBRL adoption date, namely, June 15 2009 (June 15 2010). As such, our Phase 1 (Phase 2) control sample includes the eight quarters for the same firms two years prior to the date of XBRL submissions to the SEC. As a result, our control sample includes firm-quarters in 2006-2007 (2007-2008) for the Phase 1 (Phase 2) sample. As the financial crisis took place in 2008, one may argue that the magnitude of absolute discretionary accruals that we observe, particularly, for our Phase 2 control firms are heavily influenced by the financial crisis occurred in 2008, which can potentially confounds our test results.

In this section, in an attempt to mitigate the potential confounding effect of the 2008 crisis on our result, we choose the (two-year) pre-XBRL period from the period that is not overlapping with the crisis year. Specifically, we choose eight quarters in the pre-XBRL and pre-crisis period of 2005-2007 for both Phase 1 and 2 samples. This alternative matching process yields 2,902 firm-quarters filings (e.g. 1,451 in pre- vs. 1,451 post- periods). Using this new control sample, we re-estimate our main regression in Eq. (1). Regression results are reported in Table 5. Consistent with the results in Table 3, our results in Table 5 clearly support that mandatory XBRL adoption causes a decrease in opportunistic earnings management in the post-XBRL adoption period, especially for the Phase 2 sample.

[Insert Table 5]

Alternative earnings management explanations

Our hypothesis relies on the assumption that three accrual-based measures of earnings management, namely |*DAC_MJ*|, |*DAC_ROA*| and *DAC_DD*, adequately capture managerial opportunism in financial reporting. However, one cannot completely rule out the possibility that these measures may capture something else, and thus, suffer from non-trivial measurement errors. To address this concern, we perform additional tests using a reduced sample of firms that may have strong incentives for earnings management, and thus may have manipulated reported earnings aggressively. For this purpose, we construct two different samples: First, we identify 243 firm-quarter observations with net income before extraordinary items deflated by total assets falling within the range of [0, 0.005]. We construct this reduced 243 sample of firms that have just avoided losses because firms in this category are likely to have managed their earnings upward in an attempt to report nonnegative earnings number (e.g., Roychwdhury 2006).

Second, prior studies suggest that meeting or beating analysts' forecasts is an important concern to corporate managers who want to avoid the so-called "torpedo" effect associated with failure to meet analyst forecasts (e.g., Brown and Caylor 2005; Graham et al. 2005). We construct another 386 reduced sample of firms that have just met or beaten analysts' most recent consensus forecasts prior to the earnings announcement date, because firms in this category are likely to have managed their reported earnings upward. We obtain the forecasts from I/B/E/S and define the forecast error as the difference between actual earnings per share (EPS) as reported by I/B/E/S less the consensus EPS forecast. We, therefore, select 386 firm-quarter observations with their forecast errors being one cent per share or less.

Panels A, B, and C of Table 6 report |*DAC_MJ*|, |*DAC_ROA*| and *DAC_DD*, respectively, for the pre-XBRL and post-XBRL periods, for the two different reduced samples of (1) firms that have just avoided losses; and (2) firms that have just met or beaten analyst forecasts. As shown in Table 6, we find that for all six cases, the extent of opportunistic earnings management has decreased significantly from the pre-XBRL period to the post-XBRL period. This decrease in earnings management activities is statistically significant at less than the 5% level (two-tailed tests) for four out of six cases, and particularly significant at less than the 5% level across all three cases for the sample of firms that have just met or beaten analysts EPS forecasts. These results are, overall, in line with those reported in Table 3, and buttress our earlier finding that mandatory XBRL adoption discourages corporate managers to engage in opportunistic earnings management.

[Insert Table 6]

Alternative methods for measuring test variables

As a sensitivity check, we re-estimate Eq. (2) using, as our test variable, the intensity of customized extension elements used in each XBRL submission, denoted by *EXT_R*, in lieu of *OFF_E*, and *EXT_R* in Eq. (2). The variable *EXT_R* is measured by the ratio of the number of extension elements in each submission to the number of total elements (i.e., official plus extension elements). Though not tabiulated for brevity, we find that, when the sample of Phase 1 filers is used, the coefficient on *EXT_R* is significantly positive for 10-Q filers, but is insignificant for 10-K filers. When the sample of Phase 2 filers is used, the coefficient on *EXT_R* is significantly positive for two out of three regressions using 10-K filers. The above results are, overall, in line with those reported in Table 4, suggesting that the extent of opportunistic accrual management increases as the use customized extension elements becomes wide-spread and intense.

As a sensitivity check, we re-estimate Eqs. (1) and (2) using, as the dependent variable, the magnitude of absolute total accruals, which is earnings before extraordinary items minus net cash flows from operating activities. Though not tabulated, we find that our results are, overall, robust to the use of alternative proxies for opportunistic earnings management.

VI. CONCLUSION

This study investigates whether mandatory XBRL adoption for the SEC filing constrain managerial opportunism in financial reporting. In addition, we also examine whether the use of official XBRL elements (which is governed by the SEC rule) increases transparency of the accrual process and the outcomes from the process, to a greater extent, than the use of customized extension elements (which is not governed by the SEC rule). We maintain that this increased transparency increases the likelihood of reporting opportunism being detected by outside stakeholders, and thus, discourages managers to engage in opportunistic accrual choices.

Consistent with the above argument, we find that the magnitude of discretionary accruals decreases significantly from the pre-XBRL-adoption period to the post-XBRL-adoption period. We further find that this XBRL-induced decrease is further magnified when a firm's XBRL reporting relies more on standardized official elements than on customized extension elements. We also provide some evidence that customized XBRL extensions, which are not governed by the SEC, are associated with an increase in the magnitude of absolute discretionary accruals, although evidence is weak. In addition, we find that the above results are, overall, more pronounced for the sample of Phase 2 filers than for the sample of Phase 1 filers.

Our results provide an important policy implication to XBRL regulators: The sufficiency and completeness of the XBRL taxonomies governed by the SEC continues to be a concern for both early XBRL adopters and outside users of interactive data, although XBRL filers are allowed to create their own taxonomy extensions by using customized formats not governed by SEC. Our results further suggest that the major benefits from mandatory XBRL adoption may come from the improved comparability and the reduced opaqueness or obfuscation via the use of standardized official XBRL elements rather than from the enhanced flexibility via the use of customized extension elements. Therefore, it appears risky to allow a greater degree of extension tagging at this stage: Customized extension tagging may again make financial data less accessible and less comparable by market participants, particularly, non-sophisticated individual investors with less endowment of resources and expertise for data analysis, which may potentially defeat the purpose of mandatory XBRL adoption.

However, our findings should be interpreted cautiously, because as in other studies, this study is subject to some limitations. First, firms that terminate their securities registration or delay the filing of their 10-K reports in XBRL are excluded from the sample. It is not clear

whether and how the addition of these firms would change the findings of the study. Second, one cannot entirely rule out the possibility that our reported results are driven by omitted correlated variables. Omitted factors, such as IT intensity, IT experience, and several new areas of IT investments, that are correlated with information risks and/or disclosure strategies, could drive our main findings.

Notwithstanding these caveats, our findings provide important policy implications. Our study identifies an important, but not yet recognized, benefit of mandatory XBRL adoption: the use of XBRL for the SEC filing constrains, managerial opportunism in financial reporting by enhancing transparency, timeliness, accessibility, and comparability of financial information. Further, our results are in line of the view that the SEC rule should govern the XBRL reporting process by standardizing official XBRL elements and minimizing reporting flexibility associated with the use of customized XBRL extension elements that are not governed by the SEC rule. Given the scarcity of empirical evidence on the impact of XBRL adoption on internal users or preparers of financial statements, we recommend further research on the issue.

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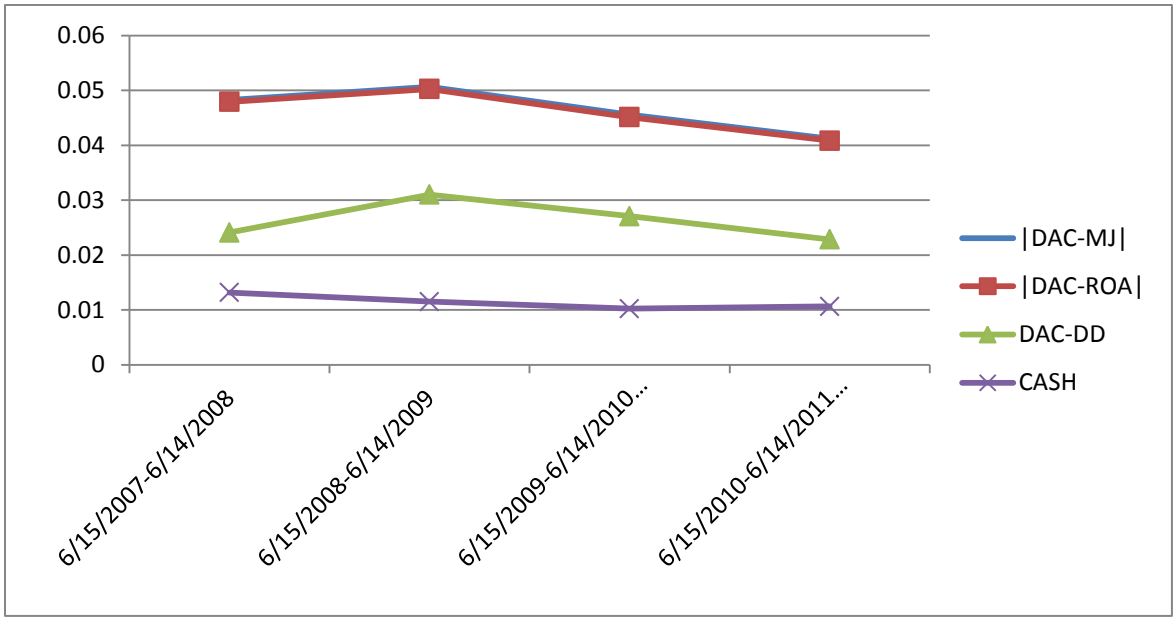
FIGURE 1

Panel A: Mean Values of |DAC_MJ|, |DAC_ROA|, DAC_DD, and CASH



Panel B: Median Values of |DAC_MJ|, |DAC_ROA|, DAC_DD, and CASH

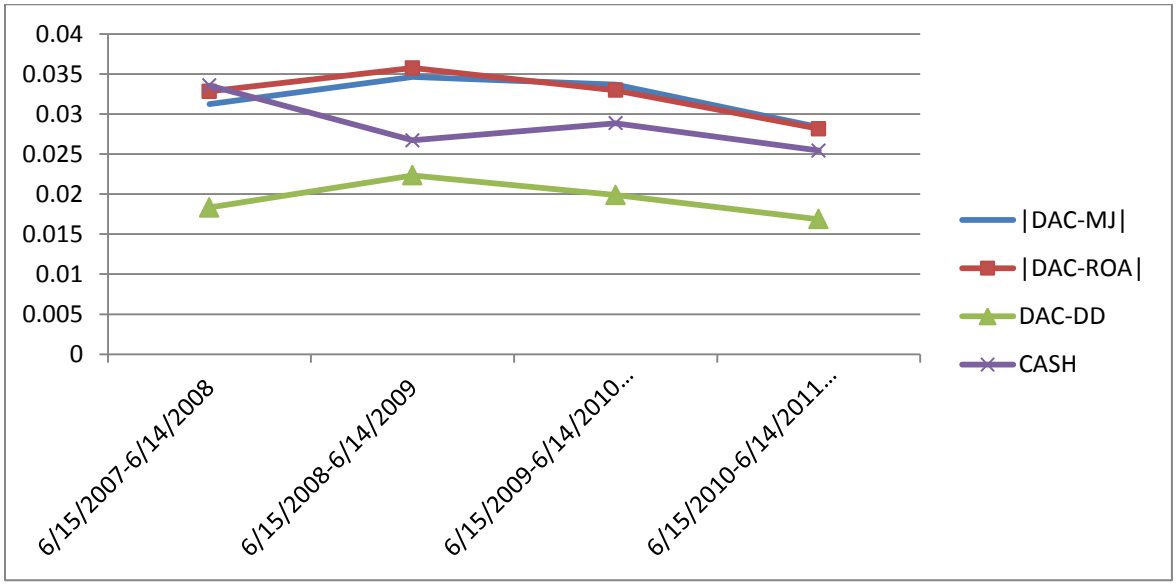


TABLE 1

Panel A: Sample Selection Procedure

	Details	Filings	Firms
Step 1	Starts from 10-Q or 10-K XBRL filings collected from EDGAR RSS Feeds (June 15, 2009 to June 14, 2011)	7,777	1,712
Step 2	Exclude from		
	missing values from *Compustat* and *IBES*	(4,899)	(771)
	the financial service industry (SIC 6000-6999) and utility industry (SIC 4900-4949)	(476)	(166)
	the sample that has less than one percent of discretionary accruals deflated by total assets	(675)	(101)
	Subtotal	1,727	674
Step 3	**Pre-XBRL versus Post-XBRL**		
	Post-XBRL: Interactive data submission by the Phase 1 & 2	**1,727**	**674**
	Phase 1: The First-Year interactive data submission:	**377**	
	First Quarter (10-Q):	83	
	Second Quarter (10-Q):	67	
	Third Quarter (10-Q):	84	
	Fourth Quarter (10-K):	143	
	Phase 2: The Second-Year interactive data submission:	**1,350**	
	First Quarter (10-Q):	271	
	Second Quarter (10-Q):	275	
	Third Quarter (10-Q):	274	
	Fourth Quarter (10-K):	530	
	Pre-XBRL: Corresponding quarter two years prior the each submission	**1,727**	**674**

Panel B: Distribution of Sample by 2-digit SIC

2-digit SIC	Industry	No.	%
01-09	Agricultural and Forestry	3	0.17
10-19	Mining, Oil and Gas, and others	77	4.35
20-27	Food, Kindred, Printing and Publishing	164	9.40
28-29	Chemicals, Petroleum and Coal, Rubber and Plastics	194	11.23
30-39	Metal, Machinery and Equipment, Instruments	686	39.63
40-49	Transportation	121	6.88
50-59	Whole Sale, Retails	176	10.10
70-79	Business Service, Auto Repair, Recreation	232	13.97
80-89	Health, Engineering and Management Service	70	4.05
99	Others	4	0.22
Total		1,727	100

Table 2
Descriptive Statistics

Panel A. All Observations

	DXBRL = 0 Pre-XBRL (N=1,727)			*DXBRL* = 1 Post-XBRL (N=1,727)			Tests for mean and median differences.	
	Mean	**Median**	**s.d.**	**Mean**	**Median**	**s.d.**	**t-value**	**z-value**
|DAC-MJ|	0.054	0.039	0.042	0.041	0.027	0.040	9.09***	13.27***
|DAC-ROA|	0.052	0.038	0.042	0.040	0.027	0.040	8.43***	11.53**
DAC-DD	0.029	0.021	0.029	0.024	0.018	0.025	5.92***	7.25***
OFF_E	NA	NA	NA	432.5	318	364.3	NA	NA
EXT_E	NA	NA	NA	72.3	25	129.4	NA	NA
LOSS	0.181	0	0.385	0.102	0	0.303	6.63***	6.59***
BIG	0.973	1	0.137	0.973	1	0.161	0.10	0.10
OPN_IC	0.981	1	0.137	0.987	1	0.112	1.49	1.49
SIZE	8.076	7.990	1.235	8.338	8.306	1.059	6.69***	6.73***
MB	3.162	2.278	3.188	3.066	2.425	2.597	0.97	3.32***
C_SALES	-0.004	0.005	0.471	0.131	0.034	3.201	1.73*	10.37***
LEV	0.292	0.284	0.187	0.289	0.282	0.181	0.46	0.39
CASH	0.012	0.028	0.062	0.011	0.026	0.059	0.53	1.14
SUR	-0.002	0.001	0.035	0.001	0.001	0.006	2.79***	4.10***

Variable Definitions:

DXBRL	is an indicator variable equal to 1 if the observation belongs to the XBRL filing period, and 0 otherwise;
|DAC_MJ|	is an absolute value of discretionary accruals as a percentage of the beginning balance of total assets computed by the modified Jones model;
|DAC_ROA|	is an absolute value of discretionary accruals as a percentage of the beginning balance of total assets computed by the Kothari et al. (2005) ROA-adjusted model;
DAC_DD	is the discretionary accruals as a percentage of the beginning balance of total assets computed by the approach suggested by Dechow and Dichev (2002);
OFF_E	is the number of official elements used;
EXT_E	is the number of extension used;
LOSS	is an indicator variable equal to 1 if firm has a negative earnings before extraordinary items, and 0 otherwise;
BIG	is an indicator variable equal to 1 if external auditor is one of the big four firms, and 0 otherwise;
OPN_IC	is an indicator variable equal to 1 if the opinion is "Effective (no material weakness)", and 0 otherwise;
SIZE	is log of the market value of firm at the end of the quarter;
MB	is market-to-book ratio at the end of the quarter;
C_SALES	is a change in sales in period t divided by sales in period t-1;
LEV	is long-term liabilities divided by total assets;
CASH	is net cash flows from operating activities;
SUR	is earnings surprise estimated by actual EPS minus mean value of analysts' forecasts divided by stock price at the end of the quarter;
POST	is an indicator variable equal to 1 if the observation belongs to the XBRL filing period, otherwise 0;
*POST*DXBRL*	is an interaction term of POST and DXBRL;
NUM	is log of one plus number of analysts following the firm;
Industry	is industry indicators based on 2-digit SIC codes.

Panel B. Dependent Variables in Phase 1 and Phase 2

			***DXBRL* = 0 Pre-XBRL**			***DXBRL* = 1 Post-XBRL**			**Tests for mean and median differences.**	
			Mean	**Median**	**s.d.**	**Mean**	**Median**	**s.d.**	**t-value**	**z-value**
Phase1	*10-Q (N=468)*	*|DAC_MJ|*	0.056	0.037	0.047	0.051	0.031	0.048	1.35	2.56**
		|DAC_ROA|	0.056	0.035	0.047	0.050	0.032	0.048	1.18	2.14**
		DAC_DD	0.022	0.018	0.014	0.030	0.021	0.045	-2.49**	-2.08**
	10-K (N=286)	*|DAC_MJ|*	0.038	0.031	0.024	0.031	0.026	0.024	2.42**	2.74***
		|DAC_ROA|	0.038	0.030	0.023	0.029	0.025	0.022	3.20***	3.53**
		DAC_DD	0.024	0.018	0.025	0.020	0.016	0.021	1.34	1.69*
Phase2	*10-Q (N=1640)*	*|DAC_MJ|*	0.054	0.040	0.044	0.047	0.059	0.044	3.44***	6.60***
		|DAC_ROA|	0.053	0.038	0.042	0.046	0.029	0.044	2.98***	5.30***
		DAC_DD	0.030	0.022	0.032	0.024	0.017	0.021	4.74***	5.22***
	10-K (N=1060.)	*|DAC_MJ|*	0.054	0.042	0.041	0.029	0.023	0.025	11.87***	12.96***
		|DAC_ROA|	0.052	0.040	0.041	0.029	0.022	0.025	11.18***	11.39***
		DAC_DD	0.030	0.021	0.030	0.020	0.015	0.015	7.02***	6.68***

***, **, * Significant at the 0.01, 0.05, and 0.10 levels using a two-tailed t- test, respectively. Variables defined in Table 2.

TABLE 3: Effect of XBRL Adoption on Accruals

Panel A: Using Phase 1 filers

	Section A: Using |DAC_MJ| as the dependent variable						Section B: Using |DAC_ROA| as the dependent variable						Section C: Using DAC_DD as the dependent variable					
	10-Q			10-K			10-Q			10-K			10-Q			10-K		
	Coeff.	t-stat.		Coeff.	t-stat.		Coeff.	t-stat.		Coeff.	t-stat.		Coeff.	t-stat.		Coeff.	t-stat.	
Constant	0.052	2.54	**	0.071	4.46	***	0.067	3.38	***	0.035	2.40	**	-0.018	-0.33		0.093	5.16	***
DXBRL	-0.001	-0.22		-0.006	-2.32	**	0.001	0.19		-0.007	-3.10	***	0.009	1.52		-0.004	-1.65	
LOSS	-0.006	-1.09		0.015	2.50	**	-0.013	-2.23	**	0.009	1.41		0.004	0.41		0.011	2.02	**
BIG	0.005	0.54		-0.002	-0.30		0.001	0.09		0.001	0.10		-0.007	-0.77		-0.004	-0.30	
OPN_IC	-0.011	-2.24	**	-0.005	-0.67		-0.010	-2.39	**	-0.003	-0.37		0.007	0.55		0.004	0.52	
Size	0.000	-0.03		-0.003	-2.06	**	0.000	0.06		-0.002	-1.67	*	0.004	0.96		-0.006	-3.36	***
MB	0.001	1.43		0.001	1.91	*	0.001	1.40		0.000	1.29		0.000	0.58		0.001	1.95	**
C_SALES	0.007	0.49		-0.036	-3.59	***	0.002	0.12		-0.037	-3.32	***	0.003	0.38		-0.031	-1.68	*
LEV	-0.047	-4.50	***	0.007	0.78		-0.047	-4.34	***	0.003	0.30		-0.009	-0.40		0.007	0.47	
CASH	-0.599	-25.55	***	0.369	2.87	***	-0.584	-22.77	***	0.426	3.38	***	0.013	0.88		0.002	0.02	
SUR	-0.496	-0.89		0.188	0.65		-0.664	-1.22		0.120	0.40		-0.152	-0.20		0.118	0.45	
Industry		Included			Included			Included			Included			Included			Included	
F-VALUE		34.61	***		6.13	***		29.37	***		6.72	***		1.42**			1.68	***
Adj-R-sq.		0.755			0.430			0.723			0.457			0.037			0.091	
Obs. #		468			286			468			286			468			286	

Panel B: Using Phase 2 filers

	Section A: Using |DAC_MJ| as the dependent variable						Section B: Using |DAC_ROA| as the dependent variable						Section C: Using DAC_DD as the dependent variable					
	10-Q			10-K			10-Q			10-K			10-Q			10-K		
	Coeff.	t-stat.		Coeff.	t-stat.		Coeff.	t-stat.		Coeff.	t-stat.		Coeff.	t-stat.		Coeff.	t-stat.	
Constant	0.027	2.91	***	0.041	4.37	***	0.075	8.11	***	0.029	2.71	**	0.056	6.30	***	0.053	3.18	***
DXBRL	-0.009	-6.25	***	-0.016	-9.88	***	-0.008	-5.45	***	-0.015	-9.10	***	-0.004	-2.80	**	-0.005	-3.92	***
LOSS	0.004	1.44		0.045	12.57	***	0.001	0.43		0.042	12.03	***	0.021	5.72	***	0.022	8.04	***
BIG	0.009	2.30	**	0.004	1.12		0.015	4.12	***	0.003	0.86		0.004	1.03		0.005	1.77	*
OPN_IC	0.006	1.03		0.006	1.02		0.005	0.98		0.004	0.57		0.013	2.49	**	-0.004	-0.61	
Size	0.001	1.41		-0.001	-1.72	*	0.001	0.95		-0.001	-0.87		-0.002	-2.95	***	-0.002	-2.85	***
MB	0.001	3.55	***	0.000	-1.17		0.001	3.20	***	0.000	-0.30		0.001	1.81	*	0.001	2.63	***
C_SALES	0.000	2.35	**	-0.004	-0.66		0.000	-2.05	**	-0.004	-0.74		0.000	7.67	***	-0.005	-1.76	*
LEV	-0.014	-2.49	**	0.008	1.39		-0.019	-3.32	***	0.003	0.47		-0.004	-0.74		-0.009	-1.97	**
CASH	-0.466	-17.48	***	0.461	11.42	***	-0.472	-18.26	***	0.488	11.69	***	0.034	3.40	***	0.076	3.04	**
SUR	-0.169	-1.94	*	-0.111	-1.71	*	-0.165	-1.64		-0.094	-1.63	*	-0.136	-0.93		-0.081	-1.81	*
Industry		Included			Included			Included			Included			Included			Included	
F-VALUE		27.37	***		18.57	***		28.60	***		16.90	***		6.32	***		6.68	***
Adj-R-sq.		0.469			0.473			0.481			0.448			0.151			0.225	
Obs. #		1,640			1,060			1,640			1,060			1,640			1,060	

***, **, * Significant at the 0.01, 0.05, and 0.10 levels using a two-tailed t- test, respectively. Variables defined in Table 2.

TABLE 4: Effect of Official vs. Extension Elements

Panel A: Using Phase 1 filers

	Section A: Using |DAC_MJ| as the dependent variable						Section B: Using |DAC_ROA| as the dependent variable						Section C: Using DAC_DD as the dependent variable					
	10-Q			10-K			10-Q			10-K			10-Q			10-K		
	Coeff.	t-stat.		Coeff.	t-stat.		Coeff.	t-stat.		Coeff.	t-stat.		Coeff.	t-stat.		Coeff.	t-stat.	
Constant	0.05330	2.58	**	0.07595	4.62	***	0.06812	3.43	***	0.03828	2.59	**	-0.01781	-0.34		0.09417	4.99	***
OFF_E	0.00001	0.02		-0.00001	-1.03		0.00000	-0.09		-0.00002	-2.12	**	0.00005	1.15		-0.00001	-1.75	*
EXT_E	-0.00008	-0.87		-0.00007	-1.01		-0.00003	-0.23		-0.00003	-0.36		-0.00022	-0.74		0.00001	0.14	
LOSS	-0.00583	-1.05		0.01562	2.64	***	-0.01280	-2.15	**	0.00920	1.45		0.00444	0.51		0.01121	1.96	*
BIG	0.00463	0.56		-0.00206	-0.26		0.00073	0.11		0.00093	0.14		-0.00579	-0.69		-0.00386	-0.28	
OPN_IC	-0.01045	-2.05	**	-0.00506	-0.67		-0.00962	-2.25	**	-0.00304	-0.40		0.00847	0.57		0.00380	0.47	
Size	-0.00010	-0.05		-0.00320	-2.10	**	0.00001	0.00		-0.00255	-1.75	*	0.00444	0.96		-0.00609	-3.38	***
MB	0.00124	1.41		0.00074	1.88	*	0.00117	1.35	**	0.00047	1.24		0.00038	0.68		0.00104	1.92	*
C_SALES	0.00714	0.51		-0.03557	-3.50	***	0.00173	0.12		-0.03710	-3.29	***	0.00390	0.48		-0.03066	-1.65	
LEV	-0.04504	-4.32	***	0.00787	0.88		-0.04588	-4.20	***	0.00333	0.38		-0.00759	-0.32		0.00694	0.48	
CASH	-0.59741	-24.92	***	0.36602	2.84	***	-0.58296	-22.19	***	0.42482	3.36	**	0.00926	0.56		0.00165	0.02	
SUR	-0.49626	-0.89		0.27811	0.92		-0.64051	-1.17		0.16300	0.52		-0.16505	-0.20		0.11476	0.41	
Industry		Included			Included			Included			Included			Included			Included	
F-VALUE		34.34	***		6.73	***		31.55	***		7.57	***		1.30	*		1.53	**
Adj-R-sq.		0.771			0.480			0.755			0.575			0.029			0.078	
Obs. #		468			286			468			286			468			286	

Panel B: Using Phase 2 filers

	Section A: Using |DAC_MJ| as the dependent variable						Section B: Using |DAC_ROA| as the dependent variable						Section C: Using DAC_DD as the dependent variable					
	10-Q			10-K			10-Q			10-K			10-Q			10-K		
	Coeff.	t-stat.		Coeff.	t-stat.		Coeff.	t-stat.		Coeff.	t-stat.		Coeff.	t-stat.		Coeff.	t-stat.	
Constant	0.02717	2.83	***	0.04970	4.75	***	0.07357	7.51	***	0.03710	3.31	***	0.05832	6.40	***	0.05602	3.65	***
OFF_E	-0.00003	-6.38	***	-0.00003	-7.63	***	-0.00003	-5.58	***	-0.00003	-8.23	***	-0.00001	-3.15	***	-0.00001	-4.37	***
EXT_E	0.00004	3.29	***	0.00006	5.64	***	0.00003	1.99	**	0.00006	5.97	***	0.00003	2.38	**	0.00003	3.45	***
LOSS	0.00468	1.50		0.04584	12.7	***	0.00146	0.49		0.04297	12.14	***	0.02086	5.72	***	0.02181	8.11	***
BIG	0.00885	2.26	**	0.00457	1.29		0.01488	4.09	***	0.00387	1.00		0.00408	0.99		0.00507	1.86	*
OPN_IC	0.00518	0.80		0.00390	0.68		0.00440	0.74		0.00195	0.30		0.01332	2.44	**	-0.00455	-0.69	
Size	0.00197	1.95	*	-0.00157	-1.51	*	0.00182	1.74	*	-0.00072	-0.69		-0.00252	-2.81	***	-0.00200	-2.28	**
MB	0.00129	3.36	***	-0.00052	-1.54		0.00118	2.99	***	-0.00024	-0.66		0.00052	1.77	*	0.00070	2.47	**
C_SALES	0.00009	1.63		-0.00792	-1.28		-0.00014	-2.61	*	-0.00796	-1.33		0.00036	7.01	***	-0.00677	-2.13	**
LEV	-0.01229	-2.18	**	0.00970	1.72	*	-0.01697	-3.06	***	0.00456	0.81		-0.00337	-0.61		-0.00865	-1.80	*
CASH	-0.46072	-17.28	***	0.47023	11.36	***	-0.46731	-18.09	***	0.49554	11.68	***	0.03635	3.58	***	0.07886	3.13	***
SUR	-0.17081	-1.94	*	-0.11822	-1.84	*	-0.16519	-1.62		-0.10105	-1.76	*	-0.13842	-0.95		-0.08293	-1.86	*
Industry		Included			Included			Included			Included			Included			Included	
F-VALUE		25.31	***		15.53	***		25.94	***		15.33	***		5.12	***		5.53	***
Adj-R-sq.		0.476			0.464			0.482			0.461			0.133			0.212	
Obs. #		1,640			1,060			1,640			1,060			1,640			1,060	

***, **, * Significant at the 0.01, 0.05, and 0.10 levels using a two-tailed t- test, respectively. Variables defined in Table 2.

TABLE 5: Effect of XBRL Adoption on Accruals Using the matched observations in the 2005-2007 period

Panel A: Using Phase 1 filers

	Section A: Using |DAC_MJ| as the dependent variable						Section B: Using |DAC_ROA| as the dependent variable						Section C: Using DAC_DD as the dependent variable					
	10-Q			10-K			10-Q			10-K			10-Q			10-K		
	Coeff.	t-stat.		Coeff.	t-stat.		Coeff.	t-stat.		Coeff.	t-stat.		Coeff.	t-stat.		Coeff.	t-stat.	
Constant	0.041	2.65	***	0.061	4.54	***	0.036	2.08	**	0.031	2.41	**	0.019	0.56		0.061	3.78	***
DXBRL	-0.001	-0.38		-0.009	-3.13	***	0.000	0.15		-0.009	-3.06	***	0.005	1.39		-0.002	-0.74	
LOSS	-0.011	-1.99	**	0.022	5.51	***	-0.008	-1.36		0.020	4.17	***	-0.007	-0.84		0.011	1.85	*
BIG	-0.003	-0.40		-0.008	-1.08		-0.001	-0.17		-0.005	-0.80		0.007	0.33		0.005	0.50	
OPN_IC	-0.002	-0.30		-0.004	-0.78		-0.002	-0.33		-0.003	-0.56		0.007	0.93		-0.001	-0.33	
Size	0.001	0.77		-0.001	-0.81		0.002	1.13		0.000	-0.27		-0.002	-0.37		-0.004	-2.35	**
MB	0.001	2.17	**	0.000	-0.04		0.002	2.94	***	0.000	0.73		-0.001	-1.21		0.000	-0.53	
C_SALES	0.014	1.01		-0.022	-1.33		0.025	1.67	*	-0.029	-1.67	*	-0.007	-0.58		-0.022	-1.38	
LEV	-0.055	-4.49	***	0.029	2.56	**	-0.060	-4.67	***	0.018	1.85	*	0.049	1.40		0.004	0.20	
CASH	-0.577	-24.77	***	0.327	3.28	***	-0.590	-28.73	***	0.316	3.37	***	0.063	2.26	**	0.079	1.93	*
SUR	-0.158	-1.75	*	0.970	6.44	***	-0.172	-1.95	*	0.951	6.24	***	0.559	0.66		0.390	2.76	***
Industry		Included			Included			Included			Included			Included			Included	
F-VALUE		30.88	***		8.62	***		28.44	***		8.91	***		1.60	**		1.19	
Adj-R-sq.		0.753			0.556			0.737			0.565			0.058			0.039	
Obs. #		400			244			400			244			400			244	

Panel B: Using Phase 2 filers

	Section A: Using |DAC_MJ| as the dependent variable						Section B: Using |DAC_ROA| as the dependent variable						Section C: Using DAC_DD as the dependent variable					
	10-Q			10-K			10-Q			10-K			10-Q			10-K		
	Coeff.	t-stat.		Coeff.	t-stat.		Coeff.	t-stat.		Coeff.	t-stat.		Coeff.	t-stat.		Coeff.	t-stat.	
Constant	0.068	7.97	***	0.049	4.19	***	0.070	7.48	***	0.009	0.83		0.091	9.1	***	0.018	2.30	**
DXBRL	-0.005	-3.44	***	-0.008	-5.41	***	-0.003	-2.03	**	-0.006	-4.10	***	-0.005	-1.17		-0.002	-2.42	**
LOSS	-0.009	-2.05	**	0.032	7.56	***	-0.010	-2.04	**	0.029	6.88	***	0.006	1.46		0.018	6.56	***
BIG	0.001	0.26		0.005	0.96		-0.001	-0.10		0.007	1.74	*	0.009	1.72	*	0.008	3.03	***
OPN_IC	0.004	1.03		-0.004	-0.78		0.005	1.12		-0.003	-0.62		0.008	0.69		-0.004	-0.78	
Size	0.001	0.72		-0.003	-3.37	***	0.001	0.80		-0.001	-1.96	*	-0.004	-1.93	*	-0.002	-3.11	***
MB	0.001	2.89	***	0.001	0.94		0.001	2.94	***	0.001	1.10		0.001	1.83	*	0.001	3.89	***
C_SALES	0.005	0.45		-0.013	-2.50	**	0.001	0.09		-0.016	-2.95	***	0.008	1.38		-0.006	-1.10	
LEV	-0.019	-2.80	***	0.005	0.66		-0.021	-3.25	***	-0.003	-0.49		-0.024	-1.75	*	-0.016	-4.35	***
CASH	-0.503	-17.72	***	0.433	7.08	***	-0.486	-17.90	***	0.437	7.37	***	0.032	2.71	***	0.082	2.63	***
SUR	-0.148	-0.82		-0.243	-1.55		-0.172	-1.15		-0.011	-0.05		-0.014	-0.06		-0.103	-0.77	
Industry		Included			Included			Included			Included			Included			Included	
F-VALUE		34.25	***		12.89	***		32.97	***		11.65	***		1.49	**		7.44	***
Adj-R-sq.		0.555			0.425			0.545			0.398			0.018			0.286	
Obs. #		1,388			870			1,388			870			1,388			870	

***, **, * Significant at the 0.01, 0.05, and 0.10 levels using a two-tailed t- test, respectively. Variables defined in Table 2.

Table 6: Discretionary Accruals of Firms that Meet or Beat the Market Expectation

We compare the mean values of our measures after selecting highly possible sample to manage earnings. We select the sample that just avoided losses (if 0 <= income before extraordinary items deflated by total assets < 0.005. In addition, we select the sample that meets or just beats analyst forecast (if 0 <= Actual EPS minus mean value of analysts' EPS forecasts <=0.01)

Panel A: Using |DAC_MJ|

	Mean of *|DAC_MJ|*		
	Pre-XBRL (# of observations)	**Post-XBRL (# of observations)**	**Difference of Pre-Post (t-value)**
(i) Firms that just avoided losses	0.043 (118)	0.037(125)	0.005 (1.57)*,+
(ii) Firms that meet or beat analyst forecasts	0.048 (205)	0.038 (181)	0.008 (2.19)**,+++

Panel B: Using |DAC_ROA|

	Mean of *|DAC_ROA|*		
	Pre-XBRL (# of observations)	**Post-XBRL (# of observations)**	**Difference of Pre-Post (t-value)**
(i) Firms that just avoided losses	0.043 (118)	0.037(125)	0.006 (1.63)*, +
(ii) Firms that meet or beat analyst forecasts	0.047 (205)	0.039 (181)	0.008 (2.03)**,+++

Panel C: Using DAC_DD

	Mean of *DAC_DD*		
	Pre-XBRL (# of observations)	**Post-XBRL (# of observations)**	**Difference of Pre-Post (t-value)**
(i) Firms that just avoided losses	0.029 (118)	0.021(125)	0.007 (2.31)**, ++
(ii) Firms that meet or beat analyst forecasts	0.026 (205)	0.024 (181)	0.004 (2.28)**,++

***, **, * Significant at the 0.01, 0.05, and 0.10 levels using an one-tailed t- test, respectively.
+++, ++, + Significant at the 0.01, 0.05, and 0.10 levels using an one-tailed rank-sum test, respectively.
Variables defined in Table 2.