**Do SEC reviews**

**address earnings quality at IPO?**

**Abstract**

We examine how effective are SEC reviews of S-1 filings (registration statements) by firms conducting IPOs in the US. This investigation is important as market participants rely heavily on this information to make formative investment decisions, while there are well-known incentives for opportunistic disclosure at IPO. Assessing the effectiveness of SEC reviews in monitoring the quality of IPO disclosures is therefore of utmost importance. Using a Naïve Bayesian machine learning algorithm, we show that IPO firms with greater accruals-based earnings management (AEM) tend to experience more extensive SEC reviews, suggesting they are effective in addressing poor accrual quality. Weak evidence on the effectiveness of the SEC review in addressing discretionary-expense-based real earnings management (REM) is also identified. These associations have strengthened under the JOBS Act. On the contrary, SEC reviewers do not appear to be effective in detecting sales-based REM, particularly under the JOBS Act. Overall, our study sheds new light on sensitivity of SEC reviews to earnings management concern, identifying some areas for further scrutiny.

*JEL classification:* G24, G38, K22, M40, M41

*Keywords:* Initial Public Offerings; SEC reviews; Earnings management; S-1 filings

1. **Introduction**

Earnings are one of the key pieces of information on which investors base their evaluations of the performance and prospects of firms going public. Consequently, corporate managers are incentivised to manage earnings to obtain a high offering price. Around an IPO, managers commonly have strong incentives to undertake earnings management because (1) IPO markets are characterised by high information asymmetry between the IPO firms and market participants (e.g., investors, regulators), and (2) reporting favourable earnings numbers would increase the probability of successful IPO completion. A successful IPO creates valuable capital resources for business expansion as well as repayment of outstanding debt (Alhadab et al., 2015; Ducharme et al., 2001; Gounopoulos and Pham, 2018; Teoh et al.,1998b, Teoh and Wong, 2002). Our study aims to investigate associations between the degree of earnings management exhibited in IPO registration statements and the extensiveness of SEC reviews. As consistency is one of the main principles of regulatory effectiveness, this association should reflect the effectiveness of SEC reviews in addressing opportunistic reporting by IPO issuers.[[1]](#footnote-1)

The Securities and Exchange Commission (SEC) have long raised concern that erosion in the quality of financial reporting as a result of aggressive earnings management practices may have harmful impacts on investors’ decisions, such as obscuring “the true consequences of management's decisions” (Levitt, 1998). For this reason, the Division of Risk, Strategy, and Financial Innovation adopted a set of quantitative analytics to identify poor accounting quality, consisting of direct indicators of earnings management and factors that predict engagement in earnings management (Lewis, 2012).

The Division of Corporate Finance is responsible for conducting the SEC’s monitoring roles in reviewing the information quality of all IPO firms’ registration statements (i.e., S-1 filings) to guarantee that investors are “…provided with material information and to prevent fraud and misrepresentation in the public offering ...” (SEC, 2001, p.1). If any deficiency in an IPO firm’s registration statements is identified (e.g., poor accounting quality), the Division issues a comment letter bringing the deficiency up with the IPO firm. Ascertaining the effectiveness of SEC reviews of IPO registration statements is important since there is typically limited information publicly available about IPO firms at the time they go public. Investors, therefore, commonly rely on SEC comment letters to evaluate the firm’s earnings quality and the credibility of the firm’s preliminary financial reports (Johnston & Petacchi, 2017).

There have been extensive arguments about the effectiveness of SEC reviews of IPO registration statements. On the one hand, Bayless (2000), SEC Chief Accountant - Division of Corporation Finance, reported many considerable accomplishments in their reviews (e.g., the detection of various deficiencies in IPOs’ financial statements). Previous research also provides evidence that SEC reviews can be effective in detecting informational problems around IPOs and in improving the IPO information environment. Specifically, previous studies find that the SEC increase the extensiveness of their reviews in response to potentially material deficiencies in the information environment around IPOs, such as weak corporation governance (Ertimur & Nondorf, 2006), ex-ante information uncertainty (Colaco et al., 2018) and engagement in earnings management (Schuldt & Vega, 2018). The extensiveness of SEC reviews of IPO registration statements is also observed to be a good predictor of ex-post uncertainty and performance (Colaco et al., 2018, Lowry et al., 2020).

Furthermore, previous research also provides evidence that SEC reviews are effective in improving the quality of the information environment around IPOs, in particular, resulting in decreased post-IPO information asymmetry (Ertimur & Nondorf, 2006) and information uncertainty (Agarwal et al., 2017), more IPO disclosures (Li & Liu, 2017; Lowry et al., 2020), reduced offer prices, amendments to IPOs’ registration statements, better long-run performance (Li & Liu, 2017), fewer price revisions, fewer revisions in offering volume and amount (Lowry et al., 2020) and a lower degree of earnings management (Schuldt & Vega, 2018).

On the other hand, in July 2014, Robert P. Casey, United States Senator, raised his concerns about the SEC reviews of IPO disclosures by Chinese firms listing in the US.[[2]](#footnote-2) Johnston & Petacchi (2017) also suggest that the effectiveness of SEC reviews is lower when there exist political connections with reporting firms. Furthermore, the passing of the JOBS Act in 2012 is also suggested to constrain and reduce regulators’ ability to mitigate deficiencies in IPO disclosures of Emerging Growth Companies (EGCs) (Chaplinsky et al., 2017; New York Times, 2012).[[3]](#footnote-3)

Thus far, Schuldt & Vega (2018) is the only paper examining the effectiveness of SEC reviews in addressing the earnings quality of IPO registration statements. Employing a sample of 290 IPO filings from 2004 to 2009 and using discretionary revenues as a proxy of earnings management, the authors identify that more revenue recognition comments are received by IPO firms with a higher level of earnings management in years prior to the IPO and that this results in a lower level of earnings management after the IPO. As Schuldt & Vega (2018) focus on the period before the enactment of the Dodd-Frank in 2010 and the JOBS Act in 2012, it is important to ascertain whether and to what extent the effectiveness of SEC reviews has been affected by these substantive regulatory changes.

In addition, the examination of a broader range of earnings management (EM) proxies is required to establish a more comprehensive view of the extent to which SEC reviews are sensitive to earnings management around IPOs. For example, it is still unclear whether SEC reviews are effective in addressing accruals-based earnings management (AEM) and real earnings management (REM), which have been shown to be pervasive among IPO firms (Ahmad-Zaluki et al., 2011; Alhadab & Clacher, 2018; Alhadab et al., 2015, 2016; Chahine et al., 2012; Gao et al., 2017; Gounopoulos & Pham, 2017, 2018; Kouwenberg & Thontirawong, 2016; Teoh et al., 1998a, b). Cunningham et al. (2020) examine the impact of SEC scrutiny on IPO firms’ earnings management in terms of AEM and REM and identify that the SEC comment letters might lead IPO firms switch from AEM to REM, collectively implying that AEM is likely to be more targeted within SEC reviews. Therefore, it would be useful to investigate the scope of the SEC review on IPO registration statements when addressing IPO firms’ earnings management.

Using a sample of 799 IPOs filing on US exchanges between May 2005 and December 2017, we examine the sensitivity of SEC reviews to: (1) accruals-based earnings management, which involves the exercise of discretionary accounting choices in recognising accruals, and (2) real earnings management, which involves the modification of the timing or nature of real activities such as sales and discretionary expenses. The extensiveness of SEC regulatory scrutiny is measured as: (a) the duration of the IPO approval process; (b) the number of comment letters issued by the SEC; (c) the range of themes addressed by SEC comments; (d) the number of core-accounting-related comments; and (e) the number of non-core-accounting-related comments in initial SEC comment letters.

Consistent with SEC reviews being effective in addressing the information quality of IPO registration statements, our findings reveal that IPO firms with higher levels of AEM are likely to: experience longer SEC reviews; receive more comment letters and on a wider range of themes; and receive more core-accounting-related comments, indicating the effectiveness of the SEC in addressing AEM within IPO registration statements. On the other hand, the findings show weak evidence on the effectiveness of SEC reviews in addressing REM. Specifically, the SEC are identified to spend more time reviewing disclosures of IPO firms with higher discretionary-expense-based real earnings management. Also, we identify that IPO firms exhibiting higher sales-based real earning management typically have shorter, rather than longer, SEC reviews and receive fewer non-core-accounting-related comments, suggesting that SEC reviews are not similarly sensitive to all forms of earnings management and may even be ineffective in addressing sales-based manipulation within IPO registration statements.[[4]](#footnote-4)

In terms of the changes in earnings management under the JOBS Act, we observe that, as a consequence of the JOBS Act's reporting exemptions, IPO issuers are more likely to manage earnings while filing their IPO registration statements under the Act. Specifically, the degree of accruals-based EM, EM through abnormal cash flow from operations, and EM through discretionary expenses within IPO registration statements all increase after the JOBS Act’s enactment. These results are consistent with indications that the JOBS Act's passage might reduce the information quality in US capital markets (Agarwal et al., 2017; Barth et al., 2017; Chaplinsky et al., 2017).

Regarding the effects of the JOBS Act on the sensitivity of SEC reviews to income-increasing earnings management, our study shows that in both the pre- and post-JOBS Act periods, IPOs having higher degree of AEM experience longer SEC review and receive more core-accounting-related comments. After the passing of the JOBS Act in 2012, the effectiveness of SEC reviews is demonstrated more clearly as more issue types, more comments on core- and non-core accounting issues are provided by the SEC associate with higher degrees of AEM within IPOs’ registration statements. IPOs exhibiting higher discretionary-expense-based REM also receive a wider range of comment themes, more core- and non-core-accounting-related comments in the post-JOBS Act era. However, the ineffectiveness of the SEC review in addressing sale-based manipulation is identified in the post-JOBS Act era as indicated by more issues types, more core- and non-core-accounting-related comments received by IPOs having lower levels of sale- based REM, although the duration of the SEC review process of these IPOs reduced in the post-JOBS Act period. In general, the effectiveness of SEC review in addressing AEM and REM within IPO registration statements is enhanced under the JOBS Act, perhaps due to the SEC’s concern about a lower quality IPO information environment under the Act (Agarwal et al., 2017; Chaplinsky et al., 2017; Barth et al., 2017); despite the fact that ineffectiveness in addressing sales-based earnings management exists. The findings also suggest that the SEC focus more on specific content within EGC IPOs’ registration statements to constrain misstatement in IPO disclosures to ensure investor protection.

Our study offers four main contributions to the literature examining the effectiveness of the SEC’s oversight of information quality within corporate disclosures. First, to the authors’ knowledge, our study is the first to demonstrate that the SEC are effective in detecting income-increasing earning management through accruals-based and, to some extent, discretionary-expenses-based manipulations by IPO firms when preparing their registration statements. These findings are of importance to investors and other market participants who rely on SEC comment letters to obtain additional information on the IPO firm’s performance and prospects. Specifically, the results suggest that greater SEC regulatory oversight may effectively signal lower quality of the earnings numbers disclosed by IPO firms in their registration statements.

Second, our study is the first to identify that SEC reviews do not appear to effectively identify sales manipulation by IPO firms. The finding should be of interest to investors and other stakeholders as it implies that SEC reviews are not sufficient to address all forms of earnings management within IPO registration statements. Specifically, the findings suggest that investors and other stakeholders should remain cautious of sales-based earnings manipulations within registration statement information, despite reviews by the SEC. A further implication of the findings is they suggest that refinement of the SEC’s review protocols to better detect sales-based earnings management may be necessary to adequately protect investors from this form of manipulation.

Third, our study broadens the stream of literature on potential informational deficiencies arising under the JOBS Act. Specifically, engagement by IPO issuers in all forms of earnings management examined (i.e., accruals-based earnings management, sales-based real earnings management and discretionary-expenses-based real earnings management) appears to increase under the JOBS Act. These findings should be of interest to investors and policymakers as they imply that the quality of earnings information disclosed in IPO registration statements appears to have deteriorated under the JOBS Act.

Fourth, our study also contributes to the extant literature on the effects of the JOBS Act on SEC regulatory oversight of IPO registration statements. Specifically, our study is the first to provide evidence that, despite concerns to the contrary, the extensiveness of SEC reviews of IPO firms continues to be sensitive to the level of AEM and REM exhibited, after the passing of the JOBS Act in 2012. These findings are informative to investors in that they suggest that although the JOBS Act limits the scope of SEC reviews in some respects, with the exception of sales-based REM, SEC comments letters remain a reasonable indicator of the quality of earnings information provided by IPO firms.

The remainder of the paper is organised as follows. Section 2 reviews the relevant literature and develops the study’s hypotheses. The sampling procedure, the description of variables, the design of empirical tests and the descriptive statistics are discussed in Section 3. The empirical results are presented and discussed in Section 5, while Section 6 concludes the paper.

1. **Literature review**
	1. **Earnings management around IPOs**

A growing number of studies provide evidence of opportunistic earnings management around IPOs. Aharony et al. (1993) and Friedlan (1994) observe that issuers have compelling incentives to boost earnings numbers by engaging in accruals earnings management before IPOs. Teoh et al. (1998a) identify income-increasing earnings management conducted by self-interested managers in the IPO year, as indicated by systematically positive values of abnormal accruals. Various later studies also support the presence of aggressive earnings management to exaggerate earnings numbers around IPOs (Ahmad-Zaluki et al., 2011; Alhadab & Clacher, 2018; Alhadab et al., 2015, 2016; Chahine et al., 2012; Gao et al., 2017; Gounopoulos & Pham, 2017, 2018; Kouwenberg & Thontirawong, 2016).

Studies on earnings management in the IPO context mostly focus on the presence of accrual manipulation around IPOs and show a tendency by IPO managers toward income-increasing earnings management (Alhadab & Clacher, 2018; Aharony et al., 1993; DuCharme, 2001, 2004; Gounopoulos & Pham, 2017; Friedlan, 1994; Lee and Masulis, 2011; Marquardt and Wiedman, 2004; Morsfield and Tan, 2006; Teoh et al., 1998b). Recently, a growing number of studies on REM (Cohen, Dey, & Lys, 2008; Gunny, 2010; Roychowdhury, 2006; Zang, 2012) have stimulated additional interest in investigating whether such activities are undertaken in the IPO context. Alhadab & Clacher (2018), Alhadab et al. (2015), Gounopoulos & Pham (2017), and Wongsunwai (2013) report that IPO firms engage in both AEM and REM during the IPO year in order to inflate reported earnings.

* 1. **SEC reviews and the IPO information environment**

Public interest theory assumes that regulators effectively correct failures in the information environment by evaluating information on and correcting wrongdoings. Opportunistic earnings management is argued to be constrained by extensive oversight of financial information provided in prospectuses (Ball & Shivakumar, 2008; Venkataraman et al., 2008). Filatotchev et al. (2019) also suggest that regulatory pressures (e.g., investor protection and private litigation) are important factors affecting the probability and degree of earnings management and provide evidence that greater SEC enforcement and private litigation lead to reductions in the degree of earnings management. Similar evidence is provided by Bushman & Piotroski (2006), Bushman et al. (2005) and Leuz et al. (2003), who identify that the degree of earnings management is greater in countries with less extensive investor protection. Sletten et al. (2018) observe that abnormal accruals around lockup expiration are more positive for less-scrutinised firms.

There exists a general consensus in the prior literature that the extensiveness of SEC reviews of IPO registration statements is a good indicator of IPO firms’ information quality, suggesting they effectively address deficiencies in the information environment around IPOs. Ertimur & Nondorf (2006) observe that more SEC comments are issued for IPO firms with weaker corporate governance mechanisms, who have outside, independent blockholders, or higher percentage of shares held by the CEO, resulting in good accounting quality in the form of earnings management. Colaco et al. (2018) document that the length of the IPO process, which covers the process of regulatory oversight, is a good indicator of IPO firms’ information quality (e.g., ex-ante uncertainty, underpricing, post-IPO volatility). Similarly, Lowry et al. (2020) identify that IPO firms receiving more SEC comments about revenue recognition matters are likely to have a greater degree of uncertainty, as indicated by the level of post-IPO volatility, illiquidity, and the presence of insider sales. In addition, Lowry et al. (2020) identify that IPO firms experiencing more SEC concerns on issues related to revenue recognition are likely to have more obscure disclosures and poorer future prospects. Schuldt and Vega (2018) report that IPO firms displaying higher degrees of earnings management, as indicated by income-decreasing discretionary revenues pre-IPO, are likely to receive more SEC comments on revenue recognition issues, suggesting that the SEC effectively address income-decreasing earnings management activity.

In addition, a broad body of literature shows that SEC reviews enhance the quality of the information environment around IPOs. Ertimur & Nondorf (2006) identify that more SEC comments and more issues addressed in SEC letters are likely to reduce post-IPO information asymmetry. Agarwal et al. (2017) observe that when SEC comment letters issued to IPO firms contain more pages and more comments, information uncertainty following IPOs is lower. Li & Liu (2017) observe that IPO firms receiving more SEC comment letters are likely to revise their offer prices downwards to a larger extent, disclose more on the commented topics, spend more time in their IPO waiting periods, provide more amendments and have better long-run performance. Li & Liu (2017) also suggest that SEC letters may restrain going-public firms from hyping their stock to entice investors into becoming overly optimistic about the firm’s future prospects. Lowry et al. (2020) provide evidence that IPO firms receiving more SEC comment letters and letters with more wording on the topics of revenue recognition, capitalization, and liquidity are likely to have fewer price revisions, and fewer revisions to offering volumes and amounts, suggesting that SEC intervention constrains IPO firms from portraying an upwardly distorted picture of the firm’s financial performance. Schuldt & Vega (2018) provide evidence that IPO firms receiving more SEC comments on revenue recognition issues are likely to have a lower degree of income-decreasing earnings management in the post-IPO period, suggesting the SEC is effective in constraining earnings management practices.

Taken together, we posit the first hypothesis, in an alternative form, as follows.

***H1alternative:*** *IPO firms engaging in greater income-increasing earnings management when preparing S-1 filings are likely to experience more extensive SEC reviews.*

* 1. **Information quality under the JOBS Act**

The Jumpstart Our Business Startups (JOBS) Act, enacted on 5th April 2012, aimed to revitalise IPO activities by Emerging Growth Companies (EGCs) in the US through reducing certain accounting and disclosure requirements, e.g., within IPO registration statements. On the other hand, the JOBS Act, in attempting to reduce the reporting burden on EGC IPOs, resulted in decreased transparency in the IPO information environment (Agarwal et al., 2017; Barth et al., 2017; Chaplinsky et al., 2017).

Agarwal et al. (2017) provide evidence that after the enactment of the JOBS Act, EGC IPO firms disclose less accounting information, resulting in higher underpricing under the JOBS Act. Likewise, Chaplinsky et al. (2017) observe that EGC IPOs experience greater underpricing during the first day of trading as compared with non-EGC IPOs. Barth et al. (2017) also identify that EGC IPOs have greater underpricing and post-IPO volatility than non-EGC IPOs, and that information uncertainty is positively related to the implementation of exemptions under the JOBS Act provisions.

Previous studies consider information uncertainty in relation to value ambiguity, i.e., the level of difficulty in estimating firm value at a reasonable cost (Epstein and Schneider, 2008; Kim, 2006; Zhang, 2006). Value ambiguity is a crucial prerequisite for opportunistic earnings management (Healy and Wahlen, 1999; Lo, 2008), because in the absence of ambiguity, investors’ decisions are less impacted by discretionary accounting treatment. Chen et al. (2013) identify that firms operating under high information uncertainty tend to manage earnings upwards for opportunistic purposes (e.g., to issue shares at inflated prices). Hence, the second alternative hypothesis is as follows.

***H2alternative:*** *The level of earnings management engaged by IPO firms is higher under the JOBS Act.*

* 1. ***The effectiveness of SEC review of IPO registration statement under the JOBS Act***

Under circumstances of increased information uncertainty and reduced transparency, the SEC are expected to conduct more extensive reviews so as to provide more protection to investors. Specifically, Colaco et al. (2018), Ertimur & Nondorf (2006) and Lowry et al. (2020) observe that SEC reviews of IPO registration statements are more extensive when there is greater deficiency in the IPO information environment.

According to aformentioned literature, the relaxation of reporting requirements under the JOBS Act increased information uncertainty and resulted in higher underpricing for EGC IPOs. Agarwal et al. (2017) provide evidence that under the passing of the JOBS Act, SEC comment letters are more negative and forceful in tone, and concentrate more on accounting information in spite of the relaxation of disclosure requirements under the Act. These findings suggest that the SEC became more vigilant of potential informational problems under the JOBS Act. In addition, Tran et al. (2022) observe that the decrease in the extensiveness of SEC reviews under the JOBS Act is less pronounced in markets with higher concentration, where information uncertainty is higher due to greater proprietary costs of disclosure (Robinson et al., 2011; Ali et al., 2014). Therefore, the third hypothesis, in an alternative form, is stated as follows.

***H3alternative:*** *The increase in SEC review extensiveness for IPOs having higher level of income-increasing earnings management is more pronounced under the JOBS Act.*

1. **Research design**
	1. **Sample selection**

A sample of US IPO filings on NYSE, NASDAQ and AMEX between 12th May 2005 and 31st December 2017 is obtained from the Refinitiv Eikon New Issues database.[[5]](#footnote-5) IPOs with offering prices less than $5 per share, American Depositary Receipts (ADRs), financial firms, unit issues, simultaneous offerings, withdrawn IPOs and IPOs not filed under form S-1 are removed, similar to prior studies (Gounopoulos and Pham, 2017, 2018; Lee, 2011; Li and Liu, 2017; Sletten et al., 2018). This sample is then matched with accounting data from the Compustat and Refinitiv Eikon databases.

The final sample comprises 799 IPOs with non-missing data. Data for the SEC review attributes are hand collected from SEC comment letters issued for each IPO in the sample. For each IPO firm, the initial SEC comment letter for each IPO is obtained from the SEC’s EDGAR database. Specifically, SEC comment letters are identified as “UPLOAD” documents filed within the period from the filing date of initial S-1 to the IPO date, with the subject “Re: […] Registration Statement on Form S-1 [...]”. Dates of initial S-1 filings and IPO effective dates are collected from Refinitiv Eikon.

* 1. **Coding of SEC comment letters**

Manual content analysis of themes covered in a training sample of comments from initial comment letters is performed,[[6]](#footnote-6) then a Naïve Bayes machine learning algorithm is employed to expand the coding to the full sample. We begin by adapting the coding scheme developed by Ertimur & Nondorf (2006) to reflect seven main themes typically reflected in SEC comments on S-1 filings, namely; (1) core accounting; (2) non-core accounting; (3) offering-related; (4) business-related; (5) corporate governance-related; (6) disclosure-related; and (7) other. Each broad theme is then divided into a total of 45 individual headings, which are detailed in Appendix B. A sub-sample of 4,807 comments from a random sample of 261 comment letters is manually coded for use as a training dataset. From this, a machine learning algorithm is developed to code the remaining 16,440 comments. The Naïve Bayesian algorithm is used for this, which is a commonly-applied coding method in the area of text classification (Ryans, 2019), as detailed in Appendix C.

The *N*-fold cross-validation method, with *N* equal to 3, 5, 10, 25, 50 and 75, is applied to test the accuracy of the model using the manually-coded training data. For example, when N equals 10, the training dataset is divided into ten parts, with each part in turn used as testing data while employing the nine remaining parts as training data. The average success rate over all ten iterations provides an indication of the overall model. Average correct classification rates are shown in Table 1, at various *N*, when coding to all 7 categories, or alternatively coding to 3 or 4 higher-level (i.e., broader) categories. Accuracy rates of approximately 65% are observed across all values of *N*, when coding to the 7 issue types defined in Appendix 1, indicating that the model correctly classifies the SEC comments 65.38% of the time. Grouping to four broader categories, namely corporate-functions (categories A, B, D and E), offering issues (categories C), disclosure issues (category F) and other issues (category G), the success rate increases to around 73%. Success rates increase further to above 76% when grouping the corporate-functions and offering issues categories to construct a 3-category classification.

Long et al. (2009) achieve success rates of 87.6%, 67.1% and 47.7% when employing their Naïve Bayes algorithm with 2, 5 and 10 categories, respectively. Similarly, Li (2010) reports that increasing from 3 to 12 categories reduces the accuracy of the Naïve Bayes algorithm from 63% to 2%. It is intuitive that the number of categories in the coding scheme will associate negatively with coding accuracy (Eskin & Bogosian, 1998; Long et al., 2009). In general, the *N*-fold cross-validation tests show that the Bayesian learning algorithm achieves good classification accuracy. In addition, baseline accuracy shows the success rates of 71.41%, 77.41% and 80.27% for 7-category classification, 4-category classification and 3-category classification, respectively.

**[Insert Table 1 about here]**

* 1. **Variables**

**SEC review attributes**

Five proxies are employed to measure the extensiveness of the SEC review process, to be used as dependent variables in our study - for each IPO; the duration of the SEC review process, measured as the number of days from the filing date of the initial S-1 to the effective date of the IPO (*Duration)*; the number of comment letters issued (#*Letters);* the number of themes identified through coding the SEC comments (*#Themes)*; the number of core-accounting-related comments identified through the coding (#*Core-accounting issues)*;and the number of non-core-accounting-related comments identified (*#Non-core-accounting issues)*. The SEC review attributes are measured in the IPO filing year (t).

**Earnings management measures**

Engagement in earnings management by IPO firms is measured by three metrics, including abnormal accruals to capture accrual-based earnings management (Dechow et al., 1995; DeFond and Subramanyam, 1998; Jones, 1991; Kothari et al., 2005; Teoh et al., 1998b), as well as abnormal cash flow from operations and abnormal discretionary expenses to capture real earnings management (Roychowdhury, 2006) as detailed in Appendix D. The EM metrics are measured in the year prior to the year of IPO filing. The higher the extent of earnings management by the IPO firms, the more likely it is that S-1 filings prepared by issuers have low-quality earning numbers.

**Control variables**

Following Cassell et al. (2013), Duro et al. (2017), Ertimur & Nondorf (2006), Ettredge et al. (2011), Heese et al. (2017), Johnston & Petacchi (2017) and Robinson et al. (2011), firm characteristics that have been shown to predict the extensiveness of SEC reviews are included as control variables. Specifically, *LnSize* is measured as the natural logarithm of total assets of firm i in year t-1. *Firm age*is measured as the number of years since the firm first appeared on Compustat up to year t-1. *Segments*is measured as the number of unique segment industry codes reported on Compustat for year t-1. *Restructuring*is set equal to 1 if the firm has non-zero restructuring costs on a pre-tax basis in year t-1 (i.e., the IPO firm has engaged in restructuring activities) and 0 otherwise. *M&A* is set equal to 1 if firm i has non-zero acquisition or merger costs on a pre-tax basis in year t-1 (i.e., the IPO firm has engaged in merger and acquisition activities) and 0 otherwise. A control variable for audit quality (*Big 4)* is also included, which is set equal to 1 if the firm’s auditor in year t-1 is one of the Big 4 accounting firms, and 0 otherwise, as well as a *CEOchairperson* indicator variable which equals 1 if the firm has a CEO that is also the chair of the board in year t-1, and 0 otherwise (Hesse et al., 2017).

Furthermore, variables reflecting IPO firms’ financial health, debt levels (*Leverage)* andthe likelihood of financial distress (*Zscore)*, are also added as controls. SEC scrutiny is expected to be more extensive for firms with higher debt levels (Duro et al., 2017) or are in financial distress (Heese et al., 2017), as they are less likely to be GAAP compliant (Dechow et al., 1996; Brazel et al., 2009). Specifically, *Leverage* is calculated as the ratio of total liabilities to total equity in year t-1. *Zscore* is measured by applying the modified Z-score model for private companies detailed in Appendix A.

* 1. **Empirical tests**

A series of negative binomial regression models are developed to examine the relationship between SEC S-1 reviews and earnings management.[[7]](#footnote-7) Since each of the dependent variables (*Duration, #Letters, #Themes, #Core-accounting-issues, #Non-core-accounting issues*) are discrete and countable, negative binomial regressions are more appropriate than other methods (e.g., OLS) (Rock et al., 2000).[[8]](#footnote-8) Colaco et al. (2017), Li & Liu (2017) and Schuldt & Vega (2018) similarly employ negative binomial regressions to model discrete SEC review attributes.

The baseline regression model is as follows:[[9]](#footnote-9)

|  |  |
| --- | --- |
|  | (1) |

where represents, in turn, each of the SEC review measures: *Duration, #Letters, #Themes, #Core-accounting issues* and *#Non-core-accounting issues*. , represents each of the three earnings management proxies: *DACC, ACFO* and *ADISEXP*. In each case, is the coefficient of interest used to evaluate H1. is a vector containing each of the control variables discussed in Appendix A. is a vector of year fixed effects based on the S-1 filing year, while represents industry fixed effects according to the Fama-French 12 industry classification scheme. Following Colaco et al. (2017), robust standard errors are employed that are clustered at the 12 Fama-French industry level.[[10]](#footnote-10)

Given the earnings management proxies are continuous variables, the following OLS regression is employed to test changes in earnings management under the JOBS Act.

 (2)

where represents *DACC, ACFO* and *ADISEXP* and their absolute values including *DACC\_abs, ACFO\_abs* and *ADISEXP\_abs* Absolute discretionary accruals are used to proxy for earnings management to capture both upward and downward earnings management. *JOBS Acti,t* is a dummy variable equal to 1 for IPOs filed from 2012 onwards, and 0 otherwise. All other variables are as previously defined.

In order to test how the 2012 JOBS Act impacts the effectiveness of SEC reviews in addressing EM by IPO firms, we augment Equation 1 to include an interaction between *JOBS Acti,t* and , as follows:[[11]](#footnote-11)

|  |  |
| --- | --- |
|  | (3) |

* 1. **Descriptive statistics**

Table 2, Panel A presents the distribution of IPOs between 2005 and 2017, showing that the volume of IPOs dramatically increases in 2013 and reaches a peak in 2014 with values of 99 (12.39%) and 110 (13.77%). This is likely due to the impact of the JOBS Act enacted in 2012, which reduces disclosure burdens to incentivise emerging growth companies, who account for the majority of the IPO market in the US A significant decline in IPO volume in 2008 is also identified, which may be due to the impact of the 2007-2008 financial crisis. Table 2, Panel B presents the distribution of IPO firms by the Fama-French 12 industry classification scheme. The majority of IPOs are conducted by firms in the Business Equipment - Computers, Software, and Electronic Equipment industry and Healthcare, Medical Equipment, and Drugs sectors, constituting about 25.16% and 38.55% of the sample, respectively. The proportion of IPOs in other industries varies from 0.5% to 10.64%.

**[Insert Table 2 about here]**

Table 3 presents descriptive statistics for the whole sample as well as an analysis of the differences between IPOs receiving SEC comments about earnings-related issues and those not receiving SEC comments about earnings-related issues. Panel A presents the descriptive statistics for SEC review attributes. The mean (median) value of: *Duration* is 111.24 (88) days; *#Letters* is 2.67 (3) letters; *#Themes* is 3.43 (4) issue types; #*Core-accounting issues* is 3.91 (2) comments; and #*Non-core-accounting issues* is 22.22 (17) comments.[[12]](#footnote-12)

Panel B of Table 3 provides descriptive statistics for earnings management proxies. The results reveal significantly negative mean and median values of abnormal accruals (-0.29 and -0.06, respectively) and abnormal cash flow from operations (-0.51 and -0.09, respectively) and significantly positive mean and median values of abnormal discretionary expenses (0.79 and 0.26, respectively).[[13]](#footnote-13) Furthermore, IPOs receiving SEC comments on core-accounting issues, which are relevant to earnings-related deficiencies, have significantly higher abnormal accruals, abnormal cash flow from operations and lower abnormal discretionary expenses compared to those not receiving any SEC comments on core-accounting issues.

Table 3, Panel C presents descriptive statistics for the variables of IPO firm characteristics. On average, IPOs in the sample are large companies (the mean value of LnSize is 4.33, equal to approx. $76mn of total assets), have been in operation on average for 2.6 years and have no more than two business segments.[[14]](#footnote-14) In addition, IPO firms are likely to be in financial distress. Moreover, 82% of IPO firms are audited by Big 4 auditors, 9% of IPO firms conduct restructuring activities, 13% of IPO firms conduct M&A activities and 21% of IPO firms have a CEO who is also the chair of the board of directors.

Regarding the JOBS Act, Table 3, Panel D shows that around 52% of IPO firms in the sample go public after the passing of the JOBS Act in 2012. Furthermore, we observe that, compared to IPO firms not receiving SEC comments on core-accounting issues, those receiving core-accounting-related comments tend to be larger, older, have more complexity in their business, in particular, tending to have more business segments, and are more likely to be conducting restructuring activities. Moreover, we observe in Panel D a lower (higher) proportion of IPO firms receiving (no) comments on core-accounting issues in the post-JOBS Act era.

A correlation matrix for all variables is presented in Table 3, Panel E. The results reveal that all SEC review attributes are positively correlated with abnormal accruals and negatively correlated with abnormal discretionary expenses and positively correlated with abnormal cash flow from operation. Strong negative correlations between all five SEC review attributes and *JOBS Act* are also identified.

**[Insert Table 3 about here]**

1. **Empirical results**
	1. **Main findings**

Table 4 reports the results from estimating Equation 1 using the full sample. Columns (1), (4), (7), (10) and (13) present results for the impact of abnormal accruals (*DACC)* on SEC review attributes. In line with H1, the effect of *DACC* on *Duration, #Letters* and *#Themes* is observed to be positive and significant, indicating that the SEC take longer, provide more letters and comment on a wider range of themes when reviewing IPO firms with higher abnormal accruals.[[15]](#footnote-15) *DACC* is also found to relate positively with *#Core-accounting issues,* but not *#Non-core-accounting issues*. This indicates that, in the presence of higher abnormal accruals, the SEC reviewers place higher emphasis on core-accounting-related issues, lending further support to H1.

Results in Columns (2) and (14) reveal, to the contrary, significantly positive coefficients on *ACFO* for SEC review attributes including *Duration* and *#Non-core-accounting issues*. Coefficients are consistently positive, though insignificant, across the other SEC review attributes (columns (5), (8), and (11)). Contrary to H1, the results for *ACFO* suggest that abnormally low cash flow from operations (an indication of higher sales-based REM) does not tend to result in more extensive SEC reviews, as might be expected if the SEC effectively detect and address sales-based manipulation around IPOs. This could be because, in the IPO context, sales-based manipulation is difficult to uncover since high sales growth is a common feature of going-public firms (Gounopoulos & Pham, 2017; Alhadab & Clacher, 2018). Cohen et al. (2008) and Graham et al. (2005) also argue that earnings management through sales manipulation is infrequently detected by auditors, investors, and regulators.

Finally, results for abnormal discretionary expenses provide some additional weak evidence in support of H1. Specifically, the results in Column (3) show that IPO firms with abnormally low discretionary expenses (indicating higher income-increasing REM) are likely to experience longer SEC reviews, as indicated by the negative coefficients on *ADISEXP* for *Duration.* Results for the other SEC review measures in columns (6), (9), (12), and (15) are insignificant, although directionally consistent. The findings provide at least some evidence that the extensiveness of SEC reviews increases with the likelihood of income-increasing REM through discretionary expenses.

Overall, the findings above are consistent with SEC reviews being effective in addressing AEM within IPO registration statements, but only partially effective in detecting REM. This is consistent with Graham et al.’s (2005) argument that REM attracts insufficient scrutiny from auditors and regulators, and hence may be left somewhat unaddressed.

The coefficients on the control variables are generally as expected, with more extensive SEC reviews for bigger firms (*LnSize),* older firms *(Firm age),* firms with more business segments (*Segments)*, or engaging in restructuring activities (*Restructuring)* or M&A activities (*M&A)*, all of which tend to associate with higher business complexity (Cassell et al., 2013; Heese et al., 2017). Holding all else equal, firms with a higher probability of financial distress (*Zscore)* attract more intensive SEC reviews, consistent with the findings of Heese et al. (2017). A negative effect of having a Big 4 auditor (*Big 4*) is found, supporting the conjecture that IPO firms audited by Big 4 auditors attract less SEC scrutiny (Johnston & Petacchi, 2017)*.*

**[Insert Table 4 about here]**

In Table 5, models estimating the impacts of the JOBS Act on earnings management in IPO filings are presented, as per Equation 2.[[16]](#footnote-16) In model (1), (4) and (7), we use the signed values of EM proxies as dependent variables, while we use the absolute values of EM proxies in models (2) - (3), (5) - (6), and (8) - (9). *JOBS Act* is found to have no significant relationship with signed AEM (column 1) but a positive relationship with the absolute value of AEM (columns (2) - (3)), indicating that IPO firms manage earnings either upwards or downwards to a greater extent after the JOBS Act. Similarly, we find no significant relationship between *JOBS Act* and the signed discretionary expenses-based REM measure (column (7)) but do find a positive relationship between *JOBS Act* and its absolute value (columns (8) - (9)). As for sales-based REM, the results show *JOBS Act* is negatively associated with the signed measure (column (4)) and some evidence of a positive relation with the absolute value (Column (5)), although the coefficient on JOBS Act is marginally insignificant in Column (6); the overall implication being that IPO firms appear, to an extent, to engage in more upward sales-based earnings management under the Act. The findings of generally increased earnings management under the JOBS Act are in line with arguments that its enactment exacerbated information problems in the US capital markets (Agarwal et al., 2017; Barth et al., 2017; Chaplinsky et al., 2017).

**[Insert Table 5 about here]**

Results of tests for the moderating effects of the JOBS Act on the relationship between EM and the SEC reviews, as per Equation 3, are presented in Table 6. Beginning with *DACC*, a significantly positive coefficient on *DACC*, coupled with a significantly positive coefficient on the *DACC*\**JOBS Act* interaction in Column (10), suggest that sensitivity of core-accounting-related comments to accrual-based earnings management exists in the pre-JOBS Act era and increases under the Act. Similarly, positive coefficients on the *DACC*\**JOBS Act* interactions in Columns (4), (7) and (13) (significant in Columns (7) and (13)) indicate that after the JOBS Act, *#Themes* and *#Non-core accounting issues*, and to an extent #*Letters*, are more sensitive to accrual-based earnings management.[[17]](#footnote-17) In Column (1), the main effects on *DACC* remain significantly positive on the inclusion of the *DACC\*JOBS Act* interaction, while coefficients on the interaction term are insignificant, suggesting that SEC review duration are equally sensitive to accrual-based EM before and under the JOBS Act. Despite the JOBS Act allowing for reduced disclosure within financial statements, Agarwal et al. (2017) find that SEC reviews can become more conservative and focus on deficiencies in accounting information presented. It follows that concerns that an IPO firm may be attempting to mislead investors through managing their earnings could result in higher SEC scrutiny of broader accounting information, including non-core accounting data.

Turning to the REM measures, a negative coefficient on the *ACFO\*JOBS Act* interaction is observed in Column (1), in conjunction with a smaller positive coefficient on *ACFO,* indicating a less positive relationship between *ACFO* and *Duration* under the JOBS Act. Positive coefficients on *ACFO\*JOBS Act* in Column (8), (11), and (14), howeversuggest that the SEC typically addresses *fewer* issue types, *fewer* non-core accounting issues, and *fewer* core-accounting issues, under the JOBS Act, when IPOs exhibit higher abnormally *low* cash flow from operations (i.e., greater likelihood of income-*increasing* sales-based REM). In contrast to the insignificant full sample results of Table 4, Column (11), a significant negative coefficient on *ACFO*, but a significant positive combined effect of *ACFO* + *ACFO*\**JOBS Act*, provides some indication that prior to the JOBS Act’s enactment the SEC did effectively respond to income increasing sales-based REM by issuing more core-accounting-related comments. However, under the JOBS Act, the SEC are just as likely (or perhaps more likely) to target income-*decreasing* REM through sales manipulation.

Concerning discretionary-expense-based REM, coefficients on the interaction *ADISEXP\*JOBS Act* are observed to be significantly negative in Column (9), (12) and (15), showing that the SEC issue broader comment types, more core-accounting-related comments and more non-core-accounting-related comments for IPOs displaying higher discretionary-expense-based earnings management in the post-JOBS Act period.The findings indicate that, after the JOBS Act enactment, the SEC pay more attention to and effectively address real earnings management through discretionary expense manipulation within IPO registration statements, perhaps because of greater vigilance given reduced IPO disclosures.

**[Insert Table 6 about here]**

* 1. **Robustness tests**

*IPO firm filing the draft IPO registration statement.*

Under the “de-risking” provision of the JOBS Act, EGCs can submit a draft of their S-1 filings to the SEC for confidential review prior to a public filing; accordingly, the SEC may issue fewer comments on the initial public S-1 filing because previous comments on a draft filing have already been addressed by the issuing firm. Consequently, the content of the first public SEC comment letter may not represent the full effectiveness of the SEC in addressing earnings management. We, therefore, run additional tests which control for the existence of a draft S-1 filing and the likely impact it will have on the extensiveness of the SEC’s public commentary. Specifically, we use a similar model to equation (1), except we now include an additional variable, *Draftfiling*, equal to 1 if the issuing firm has filed a draft registration statement under the “de-risking” provision of the JOBS Act, and 0 otherwise.

In line with our expectations, negative coefficients on *Draftfiling* are identified in all columns from (1) to (15) in Table 7, Panel A, indicating the SEC review on the initial S-1 filings is less extensive for IPOs filing a draft S-1. However, in general, our findings on the relationship between the SEC review attributes and earnings management proxies are robust to the inclusion of *Draftfiling*. Specifically, we identify positive coefficients on *DACC* in columns (1), (4) and (10) and negative coefficients on *DISEXP* in column (3), indicating the effectiveness of the SEC in addressing AEM and discretionary-expensed-based REM. The ineffectiveness of the SEC review in addressing sales-based REM is also demonstrated by the positive coefficient on *ACFO* in column (2).

*Simultaneous effects of abnormal cash flow from operations and other earnings management proxies*

As IPO firms can conduct AEM and REM simultaneously, we re-estimate the sensitivity of the SEC review to different types of earnings management by taking the aggregate value of three EM proxies employed in this study into consideration. Two aggregate EM proxies are constructed including *DACC\_ACFO*, which equals the sum of abnormal accruals and abnormal cash flows from operations,and *ADISEXP\_ACFO*, which equals the sum of abnormal discretionary expense and abnormal cash flows from operations.[[18]](#footnote-18) In Table 7, Panel B, we observe that *DACC* is positively related to *Duration, #Letters*, #*Core-accounting issues,* consistent with our main findings,while *DACC\_ACFO* shows no or even negative relationships with the SEC review attributes. Similarly, *ADISEXP* is identified to be negatively associated with *Duration, #Themes* and #*Non-core-accounting issues,* in line with our main findings, while *ADISEXP\_ACFO* shows no or even positive relationships with the SEC review. The findings imply that the effectiveness of the SEC review in addressing accruals-based EM and discretionary-expense-based REM will be constrained if IPO firms simultaneously engage in sales-based REM and the other EM techniques. The findings also validate the effectiveness of the SEC in addressing AEM and discretionary-expenses-based REM but not sales-based REM as shown in the main results.

**[Insert Table 7 about here]**

1. **Conclusion**

Our paper fills a gap in literature by examining the effectiveness of SEC reviews in addressing deficiencies in earnings quality within IPO registration statements. We identify that SEC reviews are sensitive to some, but not all, forms of earnings management (EM). Specifically, SEC reviews are effective in addressing income-increasing earning management by IPO firms through accruals-based and, to some extent, discretionary-expenses-based manipulations, but ineffective in detecting sales-based manipulations, in line with the argument that sale-based earnings management is less likely to be uncovered by auditors, investors and regulators (Gounopoulos & Pham, 2017; Alhadab & Clacher, 2018).

Regarding the impact of the JOBS Act on EM within IPO registration statements, we find that IPOs are likely to engage more in AEM and REM within IPO registration statements after the JOBS Act enactment. The findings support the argument that the JOBS Act’s passage escalated informational deficiencies in the US capital markets (Agarwal et al., 2017; Barth et al., 2017; Chaplinsky et al., 2017). Moreover, the findings reveal that the effectiveness of SEC reviews under the JOBS Act is equally if not more effective in addressing income-increasing earnings management through accruals and discretionary expenses manipulation, perhaps since the JOBS Act’s de-burdening provisions raise more concerns regarding information quality (Agarwal et al., 2017; Chaplinsky et al., 2017; Barth et al., 2017). Furthermore, we observe the ineffectiveness of SEC reviews in detecting sale-based REM to be particularly pronounced post-JOBS.

The findings in our study offer policy implications for regulatory bodies and suggest that monitoring mechanisms should be developed further to more effectively constrain IPO firms’ incentives to manage earnings within their registration statements. Specifically, the empirical findings imply that the SEC do not effectively uncover REM through sales-based manipulations, though this form of earnings management commonly occurs in the IPO context (Gounopoulos & Pham, 2017; Alhadab & Clacher, 2018). It could be because, in the IPO context, sales-based manipulation is difficult to uncover as high sales growth is a typical feature of going-public firms (Gounopoulos & Pham, 2017; Alhadab & Clacher, 2018).

In addition, the findings imply investors should pay more attention to potential REM within IPO registration statements when using the disclosures to form investment decisions, as the SEC appears to ineffectively uncover such form of earnings management. The level of both AEM and REM within IPO registration statements are identified to increase under the JOBS Act, implying that investors should make their investing decision with greater care. The empirical findings also indicate that while registration requirements of financial reports are relaxed under the JOBS Act, SEC reviews continue to protect investors from accrual-based and discretionary-expense-based earnings management. Therefore, to some extent, SEC comment letters can still be considered a valuable source of information about the quality of S-1 filings under the JOBS Act in some important respects.

Furthermore, the findings should also be of interest to regulators in other countries currently using, or considering the adoption of, a filing review process. For example, South Korea conducts national accounting inspections that may be analogous to filing reviews conducted by the SEC (Kim, 2019). The findings would also be instructive for other legislations beginning to develop the capital market or having weaker established financial reporting and auditing standards, weaker investor protection than the US, or even lacking these monitoring mechanisms. Specifically, other countries can learn from the SEC's monitoring mechanism in addressing EM to develop or improve their disclosure and reporting regulatory reviews more effectively.

It is also worth noting that our study has some limitations. We focus on a sample of only US IPOs, hence the generalizability of the findings may be a concern. Examining the regulatory oversight of IPO registration statements in other countries could be an important avenue for future research. Furthermore, as we only focus on the effectiveness of SEC reviews in addressing earning management by IPO firms, future research is needed to examine whether they lead to improvements in information quality within the registration statements to offer a more complete picture of the effectiveness of the SEC reviews. Moreover, it might be that the proxy used in our study does not effectively detect sales-based REM, rather than identifying a failing on the part of the SEC. Srivastava (2019) argues that measures of sales-based REM can be misspecified, as the assumption that all firms in an industry have the same cost and cash flow patterns in the absence of earnings management is usually violated. Therefore, future research is required to thoroughly examine whether detection of sales-based earnings management is a challenge for the SEC, and if so, what approaches or techniques could help to improve their effectiveness at addressing this form of manipulation.

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**Appendix A. Variable definitions**

|  |  |
| --- | --- |
| **Variable** | **Definition** |
| ***Panel A. Earnings management proxies*** |
| *DACC* | The level of abnormal accruals of firm i in year t-1, measured using the modified Jones (1991) model and adjusted for the abnormal accruals of a performance- matched non-IPO firm, following Kothari et al. (2005) |
| *ACFO* | The level of abnormal cash flow from operations of firm i in year t-1, which is measured by using the model developed by Dechow et al. (1998) and applied by Roychowdhury (2006) |
| *ADISEXP* | The level of abnormal discretionary expenses of firm i in year t-1, which is measured by using the model developed by Dechow et al. (1998) and applied by Roychowdhury (2006) |
| *DACC\_abs* | The absolute value of abnormal accruals of firm i in year t-1 |
| *ACFO\_abs* | The absolute value of abnormal cash flow from operations of firm i in year t-1 |
| *ADISEXP\_abs* | The absolute value of abnormal discretionary expenses of firm i in year t-1 |
| *DACC\_ACFO* | The sum of abnormal accruals and abnormal cash flows from operations of firm i in year t-1 |
| *ADISEXP\_ACFO* | The sum of abnormal discretionary expense and abnormal cash flows from operations of firm i in year t-1 |
| ***Panel B. SEC review attributes*** |
| *Duration* | The number of days from the filing date of the initial S-1 to the IPO effective date. (Source: Refinitiv Eikon) |
| *#Letters* | The number of comment letters that the SEC issues for firm i during the IPO review process. (Source: EDGAR) |
| *#Comments* | The number of comments in the initial SEC comment letter for firm i during the IPO review process. If no SEC comment letters are issued, #*Comments* is set equal to 0. (Source: EDGAR) |
| *#Themes* | The number of different types of issues identified in the SEC’s initial comment letter for firm i during the IPO review process. Individual themes are identified using the coding scheme and process described in section 4.2. If no SEC comment letters are issued, *#Themes* is set equal to 0. (Source: self-conducted coding) |
| #*Core-accounting issues* | The number of comments mentioned in initial SEC comment letters about core-accounting issues in initial S-1 filings prepared by firm i. If IPO issuers do not receive initial SEC comment letter, #*Core-accounting issues* equal to 0. (Source: self-conducted coding) |
| *#Non-core accounting issues* | The number of comments mentioned in initial SEC comment letters about non-core-accounting issues in initial S-1 filings prepared by firm i. If IPO issuers do not receive initial SEC comment letter, *None-core-accounting issues* equal to 0. (Source: self-conducted coding) |
| ***Panel C. JOBS Act*** |
| *JOBS Act* | An indicator variable equals to 1 if filing year of firm i’s S-1 is from 2012, when the JOBS Act was enacted, to 2017, and 0 otherwise (Source: Thomson Reuters Eikon) |
| ***Panel D. Control variables*** |
| *Size* | Firm size, the natural logarithm of total assets of firm i in year t-1. (Source: Compustat) |
| *Leverage* | Leverage ratio of firm i in year t-1, calculated as total liabilities divided by total equity. (Source: Compustat) |
| *Firm age* | Firm age as at year t-1, calculated as the number of years since firm i’ founding date provided by Jay Ritter’s website .(Source: Jay Ritter’s website) |
| *Segments* | The number of unique segment industry codes for firm i in year t-1 (Duro et al., 2017). (Source: Compustat) |
| *Zscore* | Zscore of firm i, equal to 3.25 + 6.56\*[net working capital/total assets] + 3.26\*[retained earnings/total assets] + 6.72\*[earnings before interest and taxes/total assets] + 1.05\*[book value of equity/book value of liabilities] in year t-1 (Altman, 2013). (Source: Compustat). |
| *Big4* | An indicator variable equals to 1 if firm i is audited by one of the big four audit firms (EY, Deloitte, KPMG, PwC) in year t-1, and 0 Otherwise. (Source: Compustat) |
| *Restructuring* | An indicator variable equal to 1 if firm i has non-zero restructuring cost on a pre-tax basis in year t-1, and 0 otherwise (Cassell et al., 2013; Hesse et al., 2017). (Source: Compustat) |
| *M&A* | An indicator variable equal to 1 if firm i has non-zero acquisition or merger costs on a pre-tax basis in year t-1, and 0 otherwise (Cassell et al., 2013; Hesse et al., 2017). (Source: Compustat) |
| *CEOchairperson* | An indicator variable equal to 1 if the CEO of firm i is also the chair of the board of directors in year t-1. (Source: Refinitiv Eikon) |
| *Draftfiling* | An indicator variable equal to 1 if the issuing firm has filed a draft registration statement under the “de-risking” provision of the JOBS Act, and 0 otherwise. |
|  |  |

**Appendix B. Coding scheme of issue types mentioned in initial SEC comment letters**

|  |  |  |
| --- | --- | --- |
| **Code** | **Issue types** | **Descriptions** |
| **A. Core Accounting Issues** | **Comments regarding issuers’ choice of accounting method, application of accounting method and issues about accounting transactions or actions.** |
| A1 | Assets | Questions, critiques and requests regarding choice of accounting methods (accounting principles, accounting literature) as well as application of accounting methods (estimates, assumptions, timing, classification, calculation, recording) of total assets, current assets (e.g. receivables, inventories, cash or cash equivalents, marketable securities, trading securities), non-current assets (e.g. property, plants and equipment, valuation allowance, deferred tax assets, plan assets, long-term securities), including choice and application of accounting methods of contra account (e.g. depreciation and amortization) |
| A2 | Liabilities | Questions, critiques and requests regarding choice of accounting methods (accounting standards, accounting principles, accounting literature) as well as application of accounting methods (estimates, assumptions, timing, classification, calculation, recording) of total liabilities, current liabilities (e.g. payables, tax payables, current portion of long-term debt, accrued warranty) and non-current liabilities (e.g. long-term debt, deferred tax liabilities), including choice and application of accounting methods of contra accounts |
| A3 | Equity | Questions, critiques and requests regarding choice of accounting methods (accounting principles, accounting literature) as well as application of accounting methods (estimates, assumptions, timing, classification, calculation, recording) of (historical) equity (not including the valuation of stock in the offering), e.g. common stock, preferred stock, stock warranty (including contra account, e.g. treasury stock) |
| A4 | Income | Questions, critiques and requests regarding choice of accounting methods (accounting principles, accounting literature) as well as application of accounting methods (estimates, assumptions, timing, classification, calculation, recording) of revenue recognition and other income (e.g. interest income, deemed dividend, reimbursement) |
| A5 | Expense | Questions, critiques and requests regarding choice of accounting methods (accounting principle, accounting literature) as well as application of accounting methods (estimates, assumptions, timing, classification, calculation, recording) of cost of good solds, R&D expense, advertising expense, compensation expense (e.g. valuation of stock option grant) and other expenses (e.g. Selling, general and administration expense, Benefit expense, contribution margin, customer acquisition cost, income tax, provision for income tax), including choice and application of accounting methods of contra-account (e.g. tax benefit) |
| A6 | Earnings | Questions, critiques and requests regarding choice of accounting methods (accounting principles, accounting literature) as well as application of accounting methods (estimates, assumptions, timing, classification, calculation, recording) of earning numbers (e.g. net income, other comprehensive income, EBIT, EBITDA) earning-related ratio (e.g. ROA, EPS), including choice and application of accounting methods of Extraordinary items and discontinued operation |
| A7 | Other financial items | Questions, critiques and requests regarding choice of accounting methods (accounting principles, accounting literature) as well as application of accounting methods (estimates, assumptions, timing, classification, calculation, recording) of aggregated financial items (e.g. working capital, capitalization, securities, cash flows, free cash flows, off-balance sheets items), or more than one financial items coded from A1-A6 (e.g. whole financial statements), or other components of financial statement (e.g. segment reporting, reporting currency, fiscal year-end), including new accounting announcements and auditors report about firms' financial statements. |
| A8 | Accounting-related transactions/events | Questions, critiques and requests regarding asset acquisitions and dispositions (e.g., when and how specific R&D activities or maintenance activities or sales of PPE or shipment of merchandise are conducted as well as when and how specific compensation expenses are paid) and firm’s other accounting-related transactions/actions which are often presented in section of "Note to Financial Statements" in S-1 filings (e.g. related-party (board members, other insiders) transaction, M&A activities, investment activities, acquisitions, leasing activities, off-balance sheet arrangement) , including accounting treatments for subsequent events. |
| **B. Non-core-accounting Issues** | **These items represent the SEC' comments relating to non-EM-related accounting issues including accounting method choice, accounting method application for specific items or related accounting transaction. All comments on section "Note to Financial Statements" about a specific transaction/event should be categorized into this item or the item of “Core accounting issues".** |
| B1 | Pro forma financial information | Questions, critiques and requests regarding pro forma financial information derived from effects of changes in the firm’s capital structure based on the offering or effects of a merger transaction. Pro forma financial item presents historical balance sheet and income statement information adjusted as if a transaction had occurred in the latest fiscal year or subsequent interim period |
| B2 | Non-GAAP measure | Questions, critiques and requests regarding non-GAAP financial information. Non-GAAP financial measure is a numerical measure of a registrant's historical or future financial performance, financial position, or cash flow that excludes (or includes) amounts, or is subject to adjustments that have the effect of excluding amounts, that are included (or excluded) in the most directly comparable GAAP measure. |
| B3 | Internal controls | Questions about the firm’s internal control systems and the testing, if any, of controls as well as reportable conditions or other irregularity that was identified by management related to the firm’s internal controls |
| B4 | Claims, Commitments and Contingencies | Issues or comments raised about the firm’s accounting for and disclosure of its obligations and long-term commitments, including legal matters Issues or comments raised about the firm’s accounting for and disclosure of its obligations and long-term commitments, including legal matters |
| **C. Offering-related issues** | **These items represent the SEC' comments relating to the issuers' initial public offering including offering attributes, offering procedures, offering effect, regulations, offering documents and S-1 filing's sections** |
| C1 | Characteristics of offering | Requests for information about stock characteristics (e.g. type of stocks, number of stocks, stock price and stock value relating to issuers' initial public offering), symbol used to list on stock exchange, timing of offering (e.g. a point of time or duration of the issuer's initial public offering or other offering-related transactions), dividends to pay in the future, actions affecting stocks' value (e.g. conversion of stocks, split of stocks, redemption of stocks, offering fee (e.g. registration fee), offering-related transactions/actions ( e.g. listing, sale, transfer, or other disposition of stocks by the original firm's member to a third party or Exit event), offering-related regulation (e.g. the JOBS Act), reasons why the firm is undergoing an initial public offering as well as why they are filing S-1. |
| C2 | Proceed | Requests for information about amount of proceed from their initial public offering, how issuer raised the proceeds as well as how they will use this proceed. |
| C3 | Parties of offering | Questions and requests regarding principal and selling stockholders (including their identifications, their control indicated by the number/percentage of stocks held, their consents, tax status, rights as and communication with the issuer), underwriters (including their identification, obligation, compensation, underwriting procedures and underwriters' agreements) and other parties, e.g. sponsor, consultant, NASDAQ representative (including their identification, obligation and transactions) |
| C4 | Effect of offering | Critiques and requests regarding effects of the issuer's initial public offering (e.g. dilution effect, costs of being a public company) |
| C5 | Risk factors (offering) | Questions and requests regarding characteristics and impact of risk factors on the issuers' initial public offering as well as their risk management |
| C6 | Offering-related document | Questions, critiques and requests regarding the use, style and content of exhibits, undertakings, consent letters and other offering-related document (e.g. written communication with potential investors, research reports) |
| **D. Business-related issues** | **These items represent SEC's comments relating to issuer's manufacturing, operating, R&D, marketing & selling activities** |
| D1 | Products/Services | Questions and requests regarding definition, number, pricing of firms' products/services, including firms' operating segments (including identification, aggregation or disaggregation of operating segments) |
| D2 | External stakeholders | Request for information about identifications, behaviours, related activities of customers (including current customers, potential customers, website members and market, suppliers (including current and potential suppliers), holding company and other external stockholders (e.g. regulators, supporters, partners, vendors), including business-related (e.g. environmental law, tax rate, legal proceedings), and characteristics or trends of industry (e.g. Key Performance Indicators of industry) |
| D3 | Business activities | Question , critiques and requests regarding the issuers' operating activities (including manufacturing, R&D, distributing, marketing, selling a product or service (e.g. terms of sale, backlog, reimbursement, warranty)), financing activities (including activities of historical/current stockholders, historical/current dividends, credit facility, partnership distribution, market capitalization, indebtedness), investment activities (e.g. investment in stocks and bonds, purchase/sale of fixed assets, capital expenditure), M&A activities, restructuring activities, business plan, and firm’s ability and capacity to continue as a going concern |
| D4 | Competition | Questions, critiques and requests regarding firm's competitive strength |
| D5 | Material Agreements | Question, critiques and requests regarding material contracts/agreements (e.g. lease agreements, debt/credit agreement, debt covenants, contractual obligation) and their terms |
| D6 | Properties and Facilities | Question, critiques and requests regarding firm's operating location, technology infrastructure, intellectual property (including terms of and claims against intellectual property) |
| D7 | Risk factors (business) | Questions and requests regarding characteristics and impact of risk factors on the issuers' business as well as risk management, e.g. self-insurance program |
| D8 | Results of operation | Questions, critiques and requests regarding issuer's results from operations (e.g. liquidity, probability, capital resource, gross margin, key business metrics, segment reporting) which are often presented by the disclosure of amount of accounting item, determinants/trends of the results as well as the firm's plans to achieve the results, including critiques regarding the issuer's business strength |
| D9 | External reports | Question, critiques and requests regarding information from reports prepared by external parties, data cited from these reports as well as the identification of the parties who prepared these reports |
| D10 | Status | Questions, critiques and requests regarding firm's status e.g. limited liability company, Delaware corporation, emerging growth company |
| **E. Corporate governance issues** | **These items represent the SEC's comments relating to the issuers' corporate governance mechanism** |
| E1 | Managers | Requests about information about identifications of the issuer's managers, their agreement, the time and resources they have been devoting to the firm as well as their right & obligation (e.g., issues on the firms' status as controlled company), including key performance measure applied to the managers, leadership structure and managers' signatures |
| E2 | Related parties' transactions | Questions and requests regarding transactions of related parties, including anti-takeover provisions that are included in firm’s by-laws |
| E3 | Organizational structure | Questions and requests regarding the issuers' organizational structure and ownership structure (including identifications, control and interest of the owners) |
| E4 | Compensation | Questions, critiques and requests regarding amount of non- or stock-based compensation which was paid as well as the compensation plans for the firm’s executives and employees, metrics that the firm (typically through its board of directors) uses to assess management performance, in order to determine annual bonuses |
| E5 | Employee | Questions, critiques and requests regarding employee-related matters, including salary, labour issues, employment contracts, pension and other employee benefit |
| **F. Disclosure issues** | **These items represent the SEC's comments relating to language used in the S-1 filings as well as the qualitative characteristics of the information disclosed in the S-1 filings. These items also represent the SEC's request for additional documents. In addition, these items represent the SEC's comments on the issuer's undertaking relating to the filing and disclosure of S-1, amended S-1 and other related documents** |
| F1 | Technical information | Questions, critiques and requests regarding meaning and use of industry specific terms, jargons, defined terms in S-1 filing |
| F2  | Abstract word | Questions, critiques and requests regarding use of abstract words |
| F3 | Tone | Critiques and requests regarding word tone in S-1 filings, e.g. over-positive tone (including hype or overstating information), uncertain tone |
| F4 | Selective disclosure | Critiques and requests selective disclosure S-1 filing, for example, the disclosure focus on upside or 'good' information with lack of discussion of the risk s and downside of their business and operating environment |
| F5 | Completeness | Critiques and requests regarding lack of necessary or important information required by specific rules (e.g. Regulation S-K), request of including information which is disclosed in other sections in S-1 filings or other document, requests for including additional statement. |
| F6 | General information | Questions, critiques and requests regarding general, unclear or unintelligible, unnoticeable information in S-1 filing which are often required to clarify by a specific rule, requests for highlight unnoticeable information or including more clear statement. |
| F7 | Inaccurate/inappropriate disclosure | Questions, critiques and requests regarding (could-be) inaccurate or (could-be) inappropriate disclosures of information (e.g. disclaimer, incorrect grammar) as well as (could-be) inappropriate position of the information in S-1 filing, including images, graphics or artworks used in the S-1 filing |
| F8 | Disclosure too outdated, generic, or too detailed | Critiques regarding the degree to which the information disclosed in S-1 filing are outdated, or not unique/specific to issuer, or too much detail and lengthy |
| F9 | Relevance | Questions regarding information in S-1 filings that conflict with other, unnecessarily repeated information and methods of matching information |
| F10 | References | Questions, critiques and requests regarding use, style of references as well as requests for adding references in S-1 filings |
| F11 | Format | Questions, critiques and requests regarding pictures, graphic and artworks used in S-1 filing as well as format (design or layout) of financial statements and other disclosure in S-1 filings which is inappropriate or difficult to follow |
| **G. Other issues** | **Comments on matters other than those identified above.** |

**Appendix C. Application of Naïve Bayesian algorithm**

Applying the Naïve Bayesian algorithm, we categorize each comment as relating to one of the 45 individual headings of our coding scheme. Under the Naïve Bayes algorithm, each comment is first converted into a set of words or word phrases (*vector of words or phrases*). The Bayes theorem is then applied to determine the type of comment as that with the highest conditional probability given the words and/or phrases contained in the comment, as follows:

where is notation of issue type i developed from the training dataset (, is vector of words or phrase in “unknown” comment *j* in the remaining dataset (), is notation of issue type categorized for comment *j* in the remaining dataset. An important assumption in Naïve Bayes algorithm, where the adjective “Naïve” comes from, is that the probability of a feature does not affect the probability of other features in a dataset. This assumption makes the calculation of the algorithm simpler and mitigates the “curse of dimensionality” issue (Bellman, 1961). Therefore, it is assumed that the probability of occurrence of each word or phrase is mutually independent.

**Appendix D. Measurement of earnings management**

*Accruals-based earnings management*

We concentrate on total accruals (TACC) in order to gain a comprehensive picture of managers’ discretionary accounting behaviour (Cecchini et al., 2012). This proxy is also employed in the majority of studies on accruals earnings management within the IPO context (Ball & Shivakumar, 2008; Fan, 2007; Gounopoulos & Pham, 2017, 2018; Lee & Masulis, 2011; K. Lo et al., 2017; Teoh et al., 1998a). Following prior studies (Gounopoulos & Pham, 2017, 2018; Lo et al., 2017), abnormal accruals are estimated using the modified Jones (1991) model developed by Dechow et al. (1995).

We employ the cross-sectional version of the modified Jones model. Specifically, as outlined in Jones (1991), total accruals consists of two components, namely discretionary accruals (DACC) and non-discretionary accruals (NDACC) as shown in Equation 1. NDACC reflect company performance and is forecasted by measuring the change in sales and gross property, plant and equipment. DACC reflect managers’ discretionary accounting choices and is estimated as the difference between TACC and NDACC.[[19]](#footnote-19)

TACC = DACC + NDACC (1)

Following Alhadab & Clacher (2018), Fan (2007), Gounopoulos & Pham (2017, 2018), Teoh et al. (1998a), we employ the statement-of-cash-flows method to calculate the total accruals (TACCi,t-1) of firm i in year t -1 (t is filing year of S-1 form) as shown in Equation 2 below:[[20]](#footnote-20)

 (2)

where denotes earnings before extraordinary items and discontinued operations of firm i in year t-1; is total cash flow from operations of firm i in year t-1; and is discontinued operations and extraordinary items of firm i in year t-1.

NDACC is then estimated by running the cross-sectional version of the modified Jones model for all firms on Compustat in the same filing year and two-digit SIC code industry. The model is run for each year and each two-digit SIC industry, where there are at least ten observations.[[21]](#footnote-21) Jones (1991) suggests that the change in Sales and gross Property, Plant and Equipment (PPE) are two major factors explaining differences in accrual levels, and therefore, these two factors are included into the model. Each variable is deflated by the lagged total assets of firm i in year t-2 () as a correction for heteroscedasticity. All variables are winsorized at the 1st and 99th percentiles to mitigate the effects of outliers. The model is presented in Equation 3 below:

 (3)

where is the change in total sales of firm i from year t-2 to year t-1; is the gross value of property, plant and equipment of firm i in year t-1.

Non-discretionary accruals of firm i in year t-1 are calculated by multiplying , estimated in Equation 3 by the reciprocal of the total assets in the prior year, the scaled change in cash sales (the change in revenues minus the change in account receivables), and the gross value of PPE in the prior year, respectively, as shown in Equation 4.

|  |  |
| --- | --- |
|  | (4) |

where: is the change in accounts receivable of firm i from year t-2 to year t-1. Dechow et al (1995) argue that managers might easily exercise their discretion to manage earnings over their choices of credit sales policies. Therefore, in order to avoid bias in the Jones model, the change in accounts receivable should be deducted from the change in sales in order to filter out any changes in sales which result from earnings management.

The discretionary accruals ( of firm i in year t-1 are then calculated as per Equation 5:

|  |  |
| --- | --- |
|  | (5) |

Prior studies express concern about the misspecification of the modified Jones model due to the correlation between abnormal accruals and firm performance, as identified by Dechow et al. (1995). Therefore, to avoid this issue, we also adjust for the abnormal accruals of performance-matched non-IPO firms by applying the procedure developed by Kothari et al. (2005). Specifically, we match the abnormal accruals of the issuers in the sample to those of a non-IPO peer who is in the same two-digit SIC industry and year and has the closest return on assets (ROA). The matched peer’s abnormal accruals is then deducted from the issuer’s abnormal accruals to obtain the performance-matched abnormal accruals for the issuer (denoted DACC in the analyses that follow).

*Real earnings management*

We use two proxies of REM, which are abnormal cash flow from operation and abnormal discretionary expense using the specification of the Dechow et al. (1998) model, as developed by Roychowdhury (2006).

Normal cash flow from operations and discretionary expenses are estimated for all firms on Compustat in the same filing year and two-digit SIC code industry, using linear models, as shown in Equations 6 and 7, respectively. We also employ the cross-sectional approach to estimate these models with the restriction that there must be least ten observations in each industry-year group. All variables are winsorized at the 1st and 99th percentiles to mitigate the effects of outliers.

|  |  |
| --- | --- |
|  | (6) |
|  | (7) |

 is cash flow from operations of firm i in year t-1is discretionary expenses, being the sum of selling, general and administrative (SG&A) expense, R&D expense and advertising expense; is lagged total assets of firm i in year t-2; is total sales of firm i in year t-1; and is change in total sales of firm i from year t-2 to year t-1.[[22]](#footnote-22)

The abnormal values of cash flow from operation and discretionary expense are calculated as the actual values of CFO and DISEXP minus the normal values estimated using the coefficients estimated from Equation 6 and 7, as shown in Equations 8 and 9 below:

|  |  |
| --- | --- |
|  | (8) |
|  | (9) |

Furthermore, we also match abnormal cash flow from operations and abnormal discretionary expenses of issuers in the sample to those of a non-IPO peer that is in the same two-digit SIC industry and year and has the closest ROA, to calculate performance-matched measures of abnormal cash flow from operations and abnormal discretionary expenses (denoted ACFO and ADISEXP in the analyses that follow).

Abnormal production costs (Roychowdhury, 2006; Cohen et al., 2008) are not employed as a proxy of REM within our study for three reasons. First, it is less probable that IPO firms tend to manage earnings by manipulating production costs since they are in the early phases of their life cycles (Wongsunwai, 2013). Second, Alhadab & Clacher (2018) show that manipulating earnings via production costs is a tool that is mostly employed by managers of manufacturing firms, and only 45 IPOs accounting for 5.63% of the sample operate in this industry. Third, due to limitations in the availability of data for sales two years prior to IPO year (required to calculate ), we are unable to estimate abnormal production costs.

**Appendix E. The marginal effects of IPO firms' earnings management on the extensiveness of SEC reviews**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | *Duration* |  | *#Letters* |  | *#Themes* |  | *#Core-accounting issues* |  | *#Non-core-accounting issues* |
| *DACC* |  | 2.361\*\*\*(5.18) |  |  |  | 0.054\*\*(1.96) |  |  |  | 0.111\*(1.79) |  |  |  | 0.153\*\*\*(3.82) |  |  |  | 1.155(1.29) |  |  |
| *ACFO* |  |  | 0.698\*(1.85) |  |  | 0.016(0.57) |  |  | 0.064(1) |  |  |  | 0.057(0.89) |  |  | 1.752\*(1.64) |
| *ADISEXP* |  |  |  | -1.322\*\*\*(-5.2) |  |  | -0.012(-0.81) |  |  | -0.04(-0.61) |  |  | -0.053(-1.1) |  |  | -1.296(-1.45) |
| LnSize |  | -2.174(-0.72) | -2.428(-0.79) | -2.228(-0.81) |  | -0.045(-0.45) | -0.05(-0.48) | -0.048(-0.43) |  | 0.047(0.63) | 0.028(0.35) | 0.015(0.13) |  | 0.25\*(1.65) | 0.219(1.53) | 0.111(0.56) |  | 1.841(1.62) | 1.494(1.24) | 1.346(0.94) |
| Leverage |  | -0.002(-0.01) | 0.015(0.06) | -0.197(-0.96) |  | 0.003(1.14) | 0.003(1.07) | 0.002(0.79) |  | 0.001(0.17) | 0.002(0.43) | 0.001(0.17) |  | -0.006(-0.39) | -0.002(-0.16) | 0.004(0.23) |  | -0.027(-0.35) | -0.015(-0.22) | -0.022(-0.26) |
| Firm age |  | 2.446\*\*\*(3.31) | 2.4\*\*\*(3.25) | 2.51\*\*\*(3.06) |  | 0.034\*\*(2.25) | 0.035\*\*(2.43) | 0.036\*\*(2.39) |  | 0.016(1.53) | 0.016(1.44) | 0.015(1.36) |  | 0.042(1.34) | 0.043(1.43) | 0.049(1.53) |  | 0.151(1.18) | 0.167(1.29) | 0.172(1.12) |
| Segments |  | 5.002\*\*(2.06) | 4.83\*\*(2.02) | 4.855\*(1.87) |  | 0.102(1.6) | 0.095(1.44) | 0.09(1.24) |  | 0.093(1.24) | 0.087(1.19) | 0.077(0.93) |  | 0.136(0.56) | 0.137(0.58) | 0.22(0.8) |  | 0.989(0.92) | 0.907(0.84) | 0.807(0.61) |
| Zscore |  | -0.038(-1.18) | -0.031(-1.06) | -0.041(-1.64) |  | -0.001(-1.22) | -0.001(-1.37) | -0.001(-1.61) |  | -0.003\*\*\*(-4.34) | -0.003\*\*\*(-4.41) | -0.003\*\*\*(-3.44) | -0.005\*\*(-2.17) | -0.004\*\*(-2.34) | -0.004\*(-1.76) |  | -0.027\*\*(-2.12) | -0.03\*\*\*(-2.75) | -0.028\*\*\*(-2.65) |
| Big4 |  | -11.791\*\*\*(-2.9) | -12.016\*\*\*(-3) | -6.041(-1.16) |  | -0.244(-0.91) | -0.219(-0.81) | -0.228(-0.74) |  | -0.181(-0.53) | -0.155(-0.44) | -0.137(-0.33) |  | -1.365\*\*\*(-3.12) | -1.386\*\*\*(-3.2) | -1.566\*\*(-2.55) |  | -9.407\*\*\*(-3.14) | -9.651\*\*\*(-2.97) | -10.96\*\*(-2.34) |
| Restructuring |  | 20.607\*\*\*(3.72) | 23.222\*\*\*(4.32) | 23.621\*\*\*(3.21) |  | 0.614\*\*\*(2.81) | 0.659\*\*\*(3.11) | 0.684\*\*(2.41) |  | 1.038\*\*\*(6.59) | 1.15\*\*\*(7) | 1.395\*\*\*(5.07) |  | 2.517\*\*\*(2.98) | 2.727\*\*\*(3.2) | 3.435\*\*\*(2.57) |  | 16.149\*\*\*(4.73) | 16.949\*\*\*(5.05) | 21.485\*\*\*(3.67) |
| M&A |  | 8.727(1.3) | 8.818(1.27) | 6.071(1.11) |  | 0.189\*(1.89) | 0.183\*(1.89) | 0.154(1.47) |  | 0.609\*\*\*(3.38) | 0.596\*\*\*(3.1) | 0.507\*\*\*(3.32) |  | 0.879(1.11) | 0.827(1) | 0.586(0.63) |  | 7.272\*\*(2.09) | 7.383\*(1.95) | 6.751\*(1.73) |
| CEOchairperson | -1.12(-0.23) | -1.667(-0.34) | -1.285(-0.24) |  | 0.152(0.92) | 0.131(0.81) | 0.198(1.09) |  | -0.12(-0.74) | -0.147(-0.88) | -0.16(-0.86) |  | -0.295(-0.71) | -0.29(-0.71) | -0.194(-0.45) |  | -0.569(-0.21) | -0.969(-0.36) | -1.737(-0.51) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| FE industry | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |
| FE year |  | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| N |  | 567 | 579 | 479 |  | 567 | 579 | 479 |  | 567 | 579 | 479 |  | 567 | 579 | 479 |  | 567 | 579 | 479 |
| This table presents the marginal effects of earnings management by IPO firms on the extensiveness of SEC reviews using the full sample of IPOs between May 2005 and December 2017. Negative binomial regressions are employed in this analysis. The dependent variables reflect the extensiveness of SEC reviews including; *Duration* (Model 1 - 3)*, #Letters* (Models 4 - 6)*, #Themes* (Model 7 - 9)*, #Core-accounting issues* (Model 10 - 12)and *#Non-core-accounting issues* (Models 13 - 15)*.* The independent variables of interest are proxies of earnings management including; *DACC* (Models 1, 4, 7, 10, 13) *, ACFO* (Models 2, 5, 8, 11, 14)and *ADISEXP* (Models 3, 6, 9, 12, 15). All variables are defined in Appendix A. The regressions include S-1 filings year fixed effects and industry fixed effects using Fama-French 12 industry. Z-statistics are presented in parentheses below coefficient estimates, and are based on standard errors which are robust and clustered at the industry level. \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% levels, respectively, based on a two-tailed test. |

**Table1. N-fold Cross-Validation test**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **N** |  | **7 categories** |  | **4 categories** |  | **3 categories** |
| 3 |  | 64.93% |  | 72.48% |  | 76.85% |
| 5 |  | 65.33% |  | 73.1% |  | 76.93% |
| 10 |  | 65.38% |  | 73% |  | 76.73% |
| 25 |  | 65.53% |  | 72.94% |  | 76.53% |
| 50 |  | 65.31% |  | 72.96% |  | 76.61% |
| 75 |  | 65.29% |  | 72.98% |  | 76.63% |
| Baseline accuracy |  | 71.41% |  | 77.41% |  | 80.27% |
| This table outlines the results of N-fold cross-validation tests for the Naive Bayes algorithm. For each N, the average rate of correct classifications is provided. Specifically, the algorithm divides each sentence into N classifications and then reports the results of N-fold tests. The number of folds (N value) range from 3 to 75. N-fold cross validation tests are reported for 7-category, 4-category and 3-category classifications.7-category classification include core accounting issues (Code A); non-core-accounting issues (Code B); offering-related issues (Code C) business-related issues (Code D); corporate-governance-related issues (Code E), disclosure-related issues (Code F) and other issues (Code G). For 4-category classification, code A, B, D, E are combined as corporate-function-related issue. For 3-category classification, code A, B, C, D, E are combined as corporate-activity-related issue. Baseline accuracy of each classification is also reported in the table. |

**Table 2. Distribution of IPOs by time and industry**

|  |
| --- |
| **Panel A. Time distribution**  |
| *Filing year* |  | *Frequency* |  | *%* |
| 2005 |  | 47 |  | 5.88% |
| 2006 |  | 90 |  | 11.26% |
| 2007 |  | 80 |  | 10.01% |
| 2008 |  | 17 |  | 2.13% |
| 2009 |  | 39 |  | 4.88% |
| 2010 |  | 55 |  | 6.88% |
| 2011 |  | 56 |  | 7.01% |
| 2012 |  | 36 |  | 4.51% |
| 2013 |  | 99 |  | 12.39% |
| 2014 |  | 110 |  | 13.77% |
| 2015 |  | 71 |  | 8.89% |
| 2016 |  | 53 |  | 6.63% |
| 2017 |  | 46 |  | 5.76% |
| Total |   | 799 |   | 100% |
| **Panel B. Industry distribution** |
| *Industry* |  | *Fama-French 12 industry* |  | *Frequency* |  | *%* |
| Consumer Nondurables-Cars, TV's, Furniture, Household Appliances |  | 1 |  | 17 |  | 2.13% |
| Consumer Durables-Machinery, Trucks, Planes, Off Furn, Paper, Com Printing |  | 2 |  | 13 |  | 1.63% |
| Manufacturing - Machinery, Trucks, Planes, Off Furn, Paper, Com Printing |  | 3 |  | 45 |  | 5.63% |
| Energy Oil, Gas, and Coal Extraction and Products |  | 4 |  | 26 |  | 3.25% |
| Chemicals and Allied Products |  | 5 |  | 19 |  | 2.38% |
| Business Equipment - Computers, Software, and Electronic Equipment |  | 6 |  | 201 |  | 25.16% |
| Telephone and Television Transmission |  | 7 |  | 13 |  | 1.63% |
| Utilities |  | 8 |  | 4 |  | 0.5% |
| Wholesale, Retail, and Some Services (Laundries, Repair Shops) |  | 9 |  | 68 |  | 8.51% |
| Healthcare, Medical Equipment, and Drugs |  | 10 |  | 308 |  | 38.55% |
| Finance |  | 11 |  | 0 |  | 0% |
| Other -- Mines, Constr, BldMt, Trans, Hotels, Bus Serv, Entertainment |  | 12 |  | 85 |  | 10.64% |
| Total |   |   |   | 799 |   | 100% |
| This table presents the sample distribution for the full sample of IPOs conducted between May 2005 and December 2017. This table reports the sample distribution by S-1 filing year in Panel A, and by Fama-French 12 industry classifications in Panel B. |

**Table 3. Descriptive statistics**

|  |
| --- |
|  |
| **Panel A. SEC review attributes**  |
|  | All IPOs |  |  |  |  |  |  |  |  |  |  |
|  |  | *N* |  | *Mean* |  | *p25* |  | *p50* |  | *p75* |  | *sd* |  |  |  |  |  |  |  |  |  |  |
| Duration |  | 799 |  | 111.24\*\*\* |  | 37 |  | 88\*\*\* |  | 124 |  | 121.76 |  |  |  |  |  |  |  |  |  |  |
| #Letters |  | 799 |  | 2.67\*\*\* |  | 1 |  | 3\*\*\* |  | 4 |  | 2.03 |  |  |  |  |  |  |  |  |  |  |
| #Themes |  | 799 |  | 3.43\*\*\* |  | 1 |  | 4\*\*\* |  | 6 |  | 2.46 |  |  |  |  |  |  |  |  |  |  |
| #Core-accounting issues |  | 799 |  | 3.91\*\*\* |  | 0 |  | 2\*\*\* |  | 7 |  | 4.84 |  |  |  |  |  |  |  |  |  |  |
| #Non-core-accounting issues | 799 |  | 22.22\*\*\* |  | 1 |  | 17\*\*\* |  | 40 |  | 22.89 |  |  |  |  |  |  |  |  |  |  |
| **Panel B. Earnings management proxies** |
|  |  | All IPOs |  | IPOs receiving SEC comments about core-accounting issues |  | IPOs not receiving SEC comments about core-accounting issues |  | Difference |
|  |  | *N* |  | *Mean* |  | *p25* |  | *p50* |  | *p75* |  | *sd* |  | *N* |  | *Median* |  | *N* |  | *Median* |  |  |
| DACC |  | 567 |  | -0.29\*\*\* |  | -0.38 |  | -0.06\*\*\* |  | 0.18 |  | 1.69 |  | 327 |  | -0.04 |  | 240 |  | -0.10 |  | 0.06\* |
| ACFO |  | 579 |  | -0.51\*\*\* |  | -0.62 |  | -0.09\*\*\* |  | 0.14 |  | 1.84 |  | 333 |  | -0.07 |  | 246 |  | -0.16 |  | 0.09\*\* |
| ADISEXP |   | 479 |   | 0.79\*\*\* |   | -0.11 |   | 0.26\*\*\* |   | 1.07 |   | 2.55 |   | 284 |   | 0.16 |   | 195 |   | 0.49 |   | -0.33\*\* |

|  |
| --- |
| **Panel C. Firm characteristics** |
|  |  | All IPOs |  | IPOs receiving SEC comments about core-accounting issues |  | IPOs not receiving SEC comments about core-accounting issues |  | Difference |
|  |  | *N* |  | *Mean* |  | *p25* |  | *p50* |  | *p75* |  | *sd* |  | *N* |  | *Mean* |  | *N* |  | *Mean* |  |  |
| LnSize |  | 799 |  | 4.33\*\*\* |  | 3.21 |  | 4.1\*\*\* |  | 5.46 |  | 1.92 |  | 494 |  | 4.51 |  | 305 |  | 4.02 |  | 0.49\*\*\* |
| Leverage |  | 799 |  | -28.4 |  | -0.87 |  | -0.2\*\*\* |  | 0.81 |  | 769.32 |  | 494 |  | -1.94 |  | 305 |  | -71.25 |  | 69.31 |
| Firm age |  | 799 |  | 2.6\*\*\* |  | 1 |  | 1\*\*\* |  | 3 |  | 5.04 |  | 494 |  | 3.09 |  | 305 |  | 1.81 |  | 1.28\*\*\* |
| Segments |  | 799 |  | 1.4\*\*\* |  | 1 |  | 1\*\*\* |  | 1 |  | 1.03 |  | 494 |  | 1.51 |  | 305 |  | 1.21 |  | 0.3\*\*\* |
| Zscore |  | 799 |  | -13.68\*\*\* |  | -10.75 |  | -0.2\*\*\* |  | 4.19 |  | 67.39 |  | 494 |  | -13.37 |  | 305 |  | -14.18 |  | 0.81 |
| Big4 |  | 799 |  | 0.82\*\*\* |  | 1 |  | 1\*\*\* |  | 1 |  | 0.38 |  | 494 |  | 0.83 |  | 305 |  | 0.82 |  | 0.01 |
| Restructuring |  | 799 |  | 0.09\*\*\* |  | 0 |  | 0\*\*\* |  | 0 |  | 0.29 |  | 494 |  | 0.11 |  | 305 |  | 0.07 |  | 0.04\*\* |
| M&A |  | 799 |  | 0.13\*\*\* |  | 0 |  | 0\*\*\* |  | 0 |  | 0.34 |  | 494 |  | 0.14 |  | 305 |  | 0.11 |  | 0.03 |
| CEOchairperson |   | 799 |   | 0.21\*\*\* |   | 0 |   | 0\*\*\* |   | 0 |   | 0.41 |   | 494 |   | 0.23 |   | 305 |   | 0.19 |   | 0.04 |
| **Panel D. Regulatory event** |
|  |  | All IPOs |  | IPOs receiving SEC comments about core-accounting issues |  | IPOs not receiving SEC comments about core-accounting issues |  | Difference |
|  |  | *N* |  | *Mean* |  | *p25* |  | *p50* |  | *p75* |  | *sd* |  | *N* |  | *Mean* |  | *N* |  | *Mean* |  |  |
| JOBS Act |  | 799 |  | 0.52\*\*\* |  | 0 |  | 1\*\*\* |  | 1 |  | 0.50 |  | 494 |  | 0.32 |  | 305 |  | 0.84 |  | -0.52\*\*\* |

|  |
| --- |
| **Panel E. Correlation matrix** |
|   | Duration | #Letters | #Themes | #Core-accounting issues | #Non-core-accounting issues | DACC | ACFO | ADISEXP | LnSize | Leverage | Firm age | Segments | Zscore | Big 4 | Restructuring | M&A | CEOchairperson | JOBS Act |
| Duration | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| #Letters | **0.58\*\*\*(0.00)** | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| #Themes | **0.31\*\*\*(0.00)** | **0.67\*\*\*(0.00)** | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| #Core-accounting issues | **0.26\*\*\*(0.00)** | **0.49\*\*\*(0.00)** | **0.65\*\*\*(0.00)** | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| #Non-core-accounting issues | **0.35\*\*\*(0.00)** | **0.67\*\*\*(0.00)** | **0.79\*\*\*(0.00)** | **0.61\*\*\*(0.00)** | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DACC | **0.08\*(0.06)** | **0.10\*\*\*(0.01)** | **0.13\*\*\*(0.00)** | **0.10\*\*\*(0.01)** | **0.09\*\*(0.04)** | 1 |  |  |  |  |  |  |  |  |  |  |  |  |
| ACFO | **0.08\*\*(0.05)** | **0.12\*\*\*(0.00)** | **0.16\*\*\*(0.00)** | **0.13\*\*\*(0.00)** | **0.18\*\*\*(0.00)** | **0.45\*\*\*(0.00)** | 1 |  |  |  |  |  |  |  |  |  |  |  |
| ADISEXP | **-0.09\*\*(0.04)** | **-0.12\*\*\*(0.01)** | **-0.14\*\*\*(0.00)** | **-0.08\*(0.08)** | **-0.15\*\*\*(0.00)** | **-0.77\*\*\*(0.00)** | **-0.84\*\*\*(0.00)** | 1 |  |  |  |  |  |  |  |  |  |  |
| LnSize | **0.10\*\*\*(0.01)** | **0.14\*\*\*(0.00)** | **0.19\*\*\*(0.00)** | **0.08\*\*(0.02)** | **0.19\*\*\*(0.00)** | **0.16\*\*\*(0.00)** | **0.32\*\*\*(0.00)** | **-0.28\*\*\*(0.00)** | 1 |  |  |  |  |  |  |  |  |  |
| Leverage | **-0.18\*\*\*(0.00)** | 0.05(0.19) | 0.05(0.17) | 0.03(0.45) | 0.03(0.35) | 0.03(0.54) | 0.03(0.44) | -0.04(0.38) | -0.06(0.11) | 1 |  |  |  |  |  |  |  |  |
| Firm age | **0.22\*\*\*(0.00)** | **0.20\*\*\*(0.00)** | **0.16\*\*\*(0.00)** | **0.08\*\*(0.03)** | **0.12\*\*\*(0.00)** | 0.05(0.27) | **0.08\*(0.07)** | **-0.08\*(0.09)** | **0.30\*\*\*(0.00)** | 0.01(0.74) | 1 |  |  |  |  |  |  |  |
| Segments | **0.14\*\*\*(0.00)** | **0.14\*\*\*(0.00)** | **0.17\*\*\*(0.00)** | **0.10\*\*\*(0.01)** | **0.20\*\*\*(0.00)** | **0.09\*\*(0.03)** | **0.13\*\*\*(0.00)** | **-0.15\*\*\*(0.00)** | **0.35\*\*\*(0.00)** | **-0.23\*\*\*(0.00)** | **0.21\*\*\*(0.00)** | 1 |  |  |  |  |  |  |
| Zscore | 0.03(0.38) | 0.03(0.42) | 0.02(0.52) | **0.07\*(0.06)** | 0.06(0.11) | **0.15\*\*\*(0.00)** | **0.24\*\*\*(0.00)** | **-0.20\*\*\*(0.00)** | **0.45\*\*\*(0.00)** | -0.01(0.78) | **0.06\*(0.09)** | **0.09\*\*\*(0.01)** | 1 |  |  |  |  |  |
| Big 4 | 0.02(0.67) | -0.01(0.68) | 0.01(0.77) | -0.03(0.41) | -0.02(0.51) | 0.04(0.39) | **0.07\*(0.07)** | -0.04(0.37) | **0.24\*\*\*(0.00)** | -0.02(0.65) | **0.08\*\*(0.03)** | 0.02(0.63) | **0.15\*\*\*(0.00)** | 1 |  |  |  |  |
| Restructuring | 0.02(0.59) | **0.09\*\*\*(0.01)** | **0.11\*\*\*(0.00)** | 0.03(0.46) | **0.10\*\*\*(0.00)** | **0.08\*(0.07)** | **0.10\*\*(0.02)** | **-0.11\*\*(0.02)** | **0.36\*\*\*(0.00)** | 0.01(0.75) | **0.12\*\*\*(0.00)** | **0.19\*\*\*(0.00)** | **0.07\*\*(0.04)** | **0.08\*\*(0.02)** | 1 |  |  |  |
| M&A | -0.04(0.22) | -0.02(0.56) | 0.04(0.26) | -0.01(0.84) | -0.04(0.29) | 0.01(0.98) | 0.04(0.31) | -0.03(0.58) | **0.33\*\*\*(0.00)** | 0.01(0.68) | **0.12\*\*\*(0.00)** | **0.12\*\*\*(0.00)** | **0.09\*\*(0.02)** | **0.08\*\*(0.03)** | **0.31\*\*\*(0.00)** | 1 |  |  |
| CEOchairperson | -0.02(0.54) | 0.02(0.55) | 0.02(0.53) | 0.01(0.88) | 0.03(0.45) | -0.04(0.33) | 0.01(0.89) | 0.06(0.22) | **0.16\*\*\*(0.00)** | 0.02(0.58) | -0.02(0.64) | 0.01(0.71) | **0.07\*(0.06)** | **0.08\*\*(0.02)** | **0.08\*\*(0.02)** | **0.05(0.2)** | 1 |  |
| JOBS Act | **-0.37\*\*\*(0.00)** | **-0.5\*\*\*(0.00)** | **-0.58\*\*\*(0.00)** | **-0.49\*\*\*(0.00)** | **-0.67\*\*\*(0.00)** | **-0.11\*\*\*(0.01)** | **-0.20\*\*\*(0.00)** | **0.16\*\*\*(0.00)** | **-0.08\*\*(0.02)** | 0.04(0.27) | **-0.06\*(0.08)** | **-0.12\*\*\*(0.00)** | **-0.12\*\*\*(0.00)** | 0.01(0.96) | 0.05(0.14) | **0.17(0.00)** | 0.01(0.71) | 1 |
| This tables reports descriptive statistics for the full sample of 799 IPOs between May 2005 and December 2017. Descriptive statistics for SEC review attributes, earnings management proxies, firm characteristics, regulatory events and a correlation matrix including all variables are reported in Panels A, B, C, D and E, respectively. All variable definitions are provided in Appendix A. T-tests and Wilcoxon sign rank tests are employed to examine differences in means and medians from zero, respectively. Tests of difference in means and medians between two samples of IPO firms receiving and not receiving SEC comments about earnings-related issues are conducted by using t-tests and Wilcoxon rank sum tests. \*, \*\*, \*\*\* denote significance at the 10%, 5%, and 1% levels, respectively. |

**Table 4. SEC reviews on S-1 filings and IPO firms' earnings management**

|  |
| --- |
|  |
|   |   | *Duration* |   | *#Letters* |  | *#Themes* |  | *#Core-accounting issues* |  | *#Non-core-accounting issues* |
|  |  | (1) | (2) | (3) |  | (4) | (5) | (6) |  | (7) | (8) | (9) |  | (10) | (11) | (12) |  | (13) | (14) | (15) |
| *DACC* |  | 0.025\*\*\*(5.45) |  |  |  | 0.023\*\*(1.96) |  |  |  | 0.035\*(1.80) |  |  |  | 0.040\*\*\*(4.02) |  |  |  | 0.051(1.32) |  |  |
| *ACFO* |  |  | 0.007\*(1.85) |  |  |  | 0.007(0.57) |  |  |  | 0.020(1.00) |  |  |  | 0.015(0.91) |  |  |  | 0.078\*(1.69) |  |
| *ADISEXP* |  |  |  | -0.014\*\*\*(-5.34) |  |  |  | -0.005(-0.81) |  |  |  | -0.012(-0.61) |  |  |  | -0.013(-1.20) |  |  |  | -0.053(-1.52) |
| LnSize |  | -0.023(-0.72) | -0.026(-0.79) | -0.023(-0.81) |  | -0.019(-0.45) | -0.021(-0.48) | -0.019(-0.43) |  | 0.015(0.63) | 0.009(0.35) | 0.005(0.13) |  | 0.065\*(1.76) | 0.058(1.59) | 0.027(0.56) |  | 0.082(1.58) | 0.067(1.21) | 0.055(0.92) |
| Leverage |  | -0.001(-0.01) | 0.001(0.06) | -0.002(-0.95) |  | 0.001(1.14) | 0.001(1.07) | 0.001(0.79) |  | 0.001(0.17) | 0.001(0.43) | 0.001(0.17) |  | -0.002(-0.39) | -0.001(-0.16) | 0.001(0.24) |  | -0.001(-0.35) | -0.001(-0.21) | -0.001(-0.26) |
| Firm age |  | 0.026\*\*\*(3.46) | 0.026\*\*\*(3.40) | 0.026\*\*\*(3.19) |  | 0.014\*\*(2.25) | 0.015\*\*(2.43) | 0.015\*\*(2.39) |  | 0.005(1.54) | 0.005(1.45) | 0.005(1.37) |  | 0.011(1.39) | 0.011(1.50) | 0.012(1.64) |  | 0.007(1.25) | 0.008(1.38) | 0.007(1.19) |
| Segments |  | 0.054\*\*(2.06) | 0.052\*\*(2.03) | 0.050\*(1.87) |  | 0.043(1.60) | 0.040(1.44) | 0.036(1.24) |  | 0.029(1.24) | 0.027(1.19) | 0.023(0.93) |  | 0.036(0.57) | 0.036(0.59) | 0.053(0.82) |  | 0.044(0.94) | 0.041(0.85) | 0.033(0.62) |
| Zscore |  | -0.001(-1.18) | -0.001(-1.06) | -0.001\*(-1.65) |  | -0.001(-1.22) | -0.001(-1.37) | -0.001(-1.61) |  | -0.001\*\*\*(-4.28) | -0.001\*\*\*(-4.35) | -0.001\*\*\*(-3.40) |  | -0.001\*\*(-2.45) | -0.001\*\*\*(-2.71) | -0.001\*(-1.82) |  | -0.001\*\*(-2.18) | -0.001\*\*\*(-2.86) | -0.001\*\*\*(-2.67) |
| Big4 |  | -0.126\*\*\*(-2.94) | -0.129\*\*\*(-3.07) | -0.062(-1.17) |  | -0.102(-0.91) | -0.092(-0.81) | -0.092(-0.74) |  | -0.057(-0.53) | -0.049(-0.45) | -0.041(-0.33) |  | -0.358\*\*\*(-2.96) | -0.367\*\*\*(-3.04) | -0.381\*\*\*(-2.62) |  | -0.418\*\*\*(-2.91) | -0.432\*\*\*(-2.84) | -0.450\*\*(-2.36) |
| Restructuring |  | 0.221\*\*\*(3.65) | 0.249\*\*\*(4.24) | 0.242\*\*\*(3.14) |  | 0.257\*\*\*(2.81) | 0.277\*\*\*(3.11) | 0.277\*\*(2.41) |  | 0.325\*\*\*(6.61) | 0.363\*\*\*(7.01) | 0.421\*\*\*(5.23) |  | 0.660\*\*\*(3.44) | 0.723\*\*\*(3.80) | 0.835\*\*\*(3.36) |  | 0.717\*\*\*(6.56) | 0.759\*\*\*(6.98) | 0.883\*\*\*(5.35) |
| M&A |  | 0.093(1.32) | 0.095(1.28) | 0.062(1.11) |  | 0.079\*(1.89) | 0.077\*(1.89) | 0.062(1.47) |  | 0.191\*\*\*(3.44) | 0.188\*\*\*(3.14) | 0.153\*\*\*(3.35) |  | 0.231(1.16) | 0.219(1.04) | 0.142(0.64) |  | 0.323\*\*(1.97) | 0.331\*(1.89) | 0.277\*(1.67) |
| CEOchairperson |  | -0.012(-0.23) | -0.018(-0.34) | -0.013(-0.24) |  | 0.064(0.92) | 0.055(0.81) | 0.080(1.09) |  | -0.038(-0.74) | -0.046(-0.88) | -0.048(-0.87) |  | -0.077(-0.71) | -0.077(-0.71) | -0.047(-0.45) |  | -0.025(-0.21) | -0.043(-0.35) | -0.071(-0.51) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| FE industry |  | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |
| FE year |  | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| N |  | 567 | 579 | 479 |  | 567 | 579 | 479 |  | 567 | 579 | 479 |  | 567 | 579 | 479 |  | 567 | 579 | 479 |
| Pseudo R2 |   | 0.0825 | 0.0822 | 0.0834 |   | 0.1364 | 0.1344 | 0.1355 |   | 0.1164 | 0.1034 | 0.1144 |   | 0.1040 | 0.1034 | 0.0944 |   | 0.0810 | 0.0816 | 0.0771 |
| This table presents the results for tests of the sensitivity of SEC reviews to earnings management by IPO firms using the full sample of IPOs between May 2005 and December 2017. Negative binomial regressions are employed in this analysis. The dependent variables reflect the extensiveness of SEC reviews including; *Duration* (Model 1 - 3)*, #Letters* (Models 4 - 6)*, #Themes* (Model 7 - 9)*, #Core-accounting issues* (Model 10 - 12)and *#Non-core-accounting issues* (Models 13 - 15)*.* The independent variables of interest are proxies of earnings management including; *DACC* (Models 1, 4, 7, 10, 13) *, ACFO* (Models 2, 5, 8, 11, 14)and *ADISEXP* (Models 3, 6, 9, 12, 15). All variables are defined in Appendix A. The regressions include S-1 filings year fixed effects and industry fixed effects using Fama-French 12 industry. Z-statistics are presented in parentheses below coefficient estimates, and are based on standard errors which are robust and clustered at the industry level. \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% levels, respectively, based on a two-tailed test. |

**Table 5. The JOBS Act and earnings management engaged by IPO firms**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **(1)** | **(2)** | **(3)** |  | **(4)** | **(5)** | **(6)** |  | **(7)** | **(8)** | **(9)** |
|  |  | DAC | DACC\_abs | DACC\_abs |  | ACFO | ACFO\_abs | ACFO\_abs |  | ADISEXP | ADISEXP\_abs | ADISEXP\_abs |
| *JOBS Act* |  | -0.097(-0.25) | 0.334\*\*(2.56) | 1.049\*\*(2.38) |  | -0.853\*(-2) | 0.509\*(2.1) | 0.888(1.65) |  | 0.61(0.9) | 0.722\*\*(2.59) | 1.321\*(1.83) |
| Size |  | 0.093\*\*(2.26) | -0.153\*\*\*(-5.91) | -0.158\*\*\*(-3.94) |  | 0.3\*(2.01) | -0.186\*\*\*(-3.79) | -0.188\*\*\*(-3.25) |  | -0.321\*\*\*(-4.74) | -0.292\*\*\*(-4.79) | -0.307\*\*\*(-4.04) |
| Leverage |  | 0.002(0.74) | -0.001(-0.04) | -0.001(-0.08) |  | -0.003(-0.99) | -0.001(-0.13) | 0.001(0.16) |  | -0.002(-0.81) | 0.001(0.26) | -0.001(-0.39) |
| Firm age |  | -0.01(-1.52) | 0.003(0.48) | 0.009(1.19) |  | -0.019\*\*(-2.54) | 0.01\*\*\*(4.96) | 0.011\*\*\*(3.64) |  | 0.023\*\*\*(3.21) | 0.014\*\*\*(4.95) | 0.019\*\*\*(3.17) |
| Segments |  | 0.037(0.71) | 0.057(1.43) | 0.062(1.62) |  | 0.02(0.6) | 0.021(0.57) | 0.017(0.53) |  | -0.084(-1.34) | -0.046(-1.17) | -0.036(-1.22) |
| Zscore |  | 0.002(1.61) | -0.001(-0.41) | -0.001(-0.46) |  | 0.002(1.07) | -0.001(-1.45) | -0.001(-1.37) |  | -0.003\*\*(-2.77) | -0.001(-0.38) | -0.001(-0.63) |
| Big4 |  | -0.018(-0.08) | -0.407\*\*(-2.75) | -0.346\*\*\*(-3.93) |  | -0.004(-0.03) | -0.052(-0.68) | -0.013(-0.14) |  | 0.137(0.8) | -0.167(-0.98) | -0.053(-0.61) |
| Restructuring |  | 0.356\*(2.12) | -0.085(-0.7) | -0.223\*(-2.16) |  | -0.018(-0.15) | -0.261(-1.09) | -0.24(-1.23) |  | -0.086(-1.06) | -0.276\*\*(-2.32) | -0.37\*\*(-2.92) |
| M&A |  | -0.213\*\*(-2.23) | 0.049(0.66) | 0.049(0.43) |  | -0.249(-0.85) | -0.021(-0.26) | -0.016(-0.21) |  | 0.286(1.15) | 0.043(0.49) | 0.069(0.68) |
| CEO-chairman | -0.283\*\*(-2.23) | 0.282\*\*(2.77) | 0.281\*\*(2.67) |  | -0.218\*(-2.05) | 0.317\*\*\*(3.43) | 0.316\*\*\*(3.49) |  | 0.6\*\*(2.23) | 0.513\*\*\*(8.39) | 0.502\*\*\*(6.07) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| FE industry |  | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |
| FE year |  | Included | No | Included |  | Included | No | Included |  | Included | No | Included |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| N |  | 567 | 567 | 567 |  | 579 | 579 | 579 |  | 479 | 479 | 479 |
| Pseudo R2 |   | 0.0791 | 0.1323 | 0.2174 |   | 0.1801 | 0.2212 | 0.2358 |   | 0.1545 | 0.2265 | 0.2557 |
| This table presents the results of impacts of the JOBS Act enactment on level of earnings management engaged by IPO firms when preparing the S-1 filings in the period from 12th May 2005 to 31st December 2017. OLS regressions are employed in this analysis. The dependent variables are signed earning management proxies including *DAC, ACFO, ADISEXP* and the absolute value of earnings management proxies including; *DAC\_abs, ACFO-abs* and *ADISEXP\_abs.* The independent variables is *JOBS Act.* All variables are defined in Appendix 1. The regressions include year fixed effect and industry fixed effects using 12 Fama-French industry. Results from t-statistics are presented in parentheses below coefficient estimates, and are based on standard errors which are robust and clustered at the industry level. \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% levels, respectively, based on a two-tailed test. |

**Table 6. The impact of the JOBS Act on the effectiveness of SEC reviews in addressing earnings management within S-1 filings**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   |   | *Duration* |  | *#Letters* |  | *#Themes* |  | *#Core-accounting issues* |  | *#Non-core-accounting issues* |
|  |  | (1) | (2) | (3) |  | (4) | (5) | (6) |  | (7) | (8) | (9) |  | (10) | (11) | (12) |  | (13) | (14) | (15) |
| *JOBS Act* |  | -1.18\*\*\*(-18.43) | -1.138\*\*\*(-22.31) | -1.197\*\*\*(-12.32) |  | -1.172\*\*\*(-3.42) | -1.129\*\*\*(-3.38) | -1.002\*\*\*(-2.69) |  | -1.478\*\*\*(-4.21) | -1.512\*\*\*(-4.8) | -1.305\*\*\*(-3.91) |  | -2.409\*\*\*(-4.08) | -2.476\*\*\*(-4.56) | -2.303\*\*\*(-3.44) |  | -3.324\*\*\*(-8.18) | -3.28\*\*\*(-9.86) | -3.053\*\*\*(-7.15) |
| *DACC* |  | 0.03\*\*(2.45) |  |  |  | 0.011(0.6) |  |  |  | 0.017(1.29) |  |  |  | 0.029\*\*(2.06) |  |  |  | -0.008(-0.43) |  |  |
| *DACC\*JOBS Act* |  | -0.012(-0.44) |  |  |  | 0.063(1.48) |  |  |  | 0.102\*\*(2.48) |  |  |  | 0.064\*(1.89) |  |  |  | 0.24\*\*\*(3) |  |  |
| *ACFO* |  |  | 0.038\*(1.77) |  |  |  | -0.02(-0.83) |  |  |  | -0.005(-0.21) |  |  |  | -0.057\*(-2.01) |  |  |  | 0.029(0.62) |  |
| *ACFO\*JOBS Act* |  |  | -0.072\*(-1.77) |  |  |  | 0.077(1.54) |  |  |  | 0.074\*\*\*(2.64) |  |  |  | 0.193\*\*\*(3.12) |  |  |  | 0.122\*\*\*(3.66) |  |
| *ADISEXP* |  |  |  | -0.018(-0.87) |  |  |  | -0.002(-0.18) |  |  |  | 0.005(0.23) |  |  |  | 0.016(0.75) |  |  |  | -0.021(-0.54) |
| *ADISEXP\*JOBS Act* |  |  |  | 0.011(0.22) |  |  |  | -0.011(-0.31) |  |  |  | -0.083\*\*\*(-3.78) |  |  |  | -0.14\*(-1.92) |  |  |  | -0.121\*\*\*(-5.73) |
| Size |  | -0.024(-0.72) | -0.027(-0.83) | -0.023(-0.79) |  | -0.017(-0.43) | -0.021(-0.46) | -0.019(-0.41) |  | 0.017(0.77) | 0.009(0.37) | 0.008(0.24) |  | 0.067\*(1.75) | 0.06\*(1.64) | 0.032(0.67) |  | 0.093\*(1.78) | 0.071(1.27) | 0.066(1.06) |
| Leverage |  | -0.001(-0.01) | 0.001(0.07) | -0.002(-0.97) |  | 0.001(1.15) | 0.001(1.05) | 0.001(0.82) |  | 0.001(0.13) | 0.001(0.42) | 0.001(0.23) |  | -0.002(-0.4) | -0.001(-0.19) | 0.001(0.24) |  | -0.002(-0.45) | -0.001(-0.25) | -0.001(-0.3) |
| Firm age |  | 0.026\*\*\*(3.44) | 0.026\*\*\*(3.44) | 0.026\*\*\*(3.16) |  | 0.014\*\*(2.3) | 0.015\*\*(2.35) | 0.015\*\*(2.38) |  | 0.005\*(1.65) | 0.005(1.44) | 0.004(1.39) |  | 0.011(1.38) | 0.011(1.52) | 0.011(1.57) |  | 0.006(1.12) | 0.007(1.3) | 0.006(0.96) |
| Segments |  | 0.054\*\*(2.1) | 0.05\*\*(1.97) | 0.049\*(1.78) |  | 0.041(1.57) | 0.041(1.44) | 0.037(1.26) |  | 0.026(1.16) | 0.029(1.24) | 0.026(1.07) |  | 0.034(0.54) | 0.041(0.68) | 0.057(0.89) |  | 0.039(0.85) | 0.046(0.98) | 0.039(0.73) |
| Zscore |  | -0.001(-1.12) | -0.001(-1.41) | -0.001\*(-1.78) |  | -0.001(-1.46) | -0.001(-0.86) | -0.001\*(-1.69) |  | -0.001\*\*\*(-5.16) | -0.001\*\*\*(-4.27) | -0.001\*\*\*(-3.54) |  | -0.001\*\*\*(-2.58) | -0.001\*(-1.72) | -0.001(-1.55) |  | -0.001\*\*\*(-2.91) | -0.001\*\*(-2.33) | -0.001\*\*(-2.36) |
| Big4 |  | -0.126\*\*\*(-2.92) | -0.124\*\*\*(-2.93) | -0.062(-1.16) |  | -0.107(-0.93) | -0.099(-0.88) | -0.093(-0.75) |  | -0.062(-0.58) | -0.055(-0.5) | -0.043(-0.36) |  | -0.368\*\*\*(-2.97) | -0.388\*\*\*(-3.28) | -0.386\*\*\*(-2.92) |  | -0.454\*\*\*(-3.08) | -0.451\*\*\*(-2.91) | -0.465\*\*\*(-2.65) |
| Restructuring |  | 0.222\*\*\*(3.63) | 0.253\*\*\*(4.32) | 0.244\*\*\*(3.07) |  | 0.252\*\*\*(2.98) | 0.277\*\*\*(3.2) | 0.275\*\*(2.33) |  | 0.314\*\*\*(6.18) | 0.36\*\*\*(7.74) | 0.403\*\*\*(5.22) |  | 0.645\*\*\*(3.35) | 0.706\*\*\*(3.8) | 0.786\*\*\*(3.2) |  | 0.648\*\*\*(4.32) | 0.743\*\*\*(6.99) | 0.831\*\*\*(5.28) |
| M&A |  | 0.094(1.33) | 0.097(1.31) | 0.062(1.11) |  | 0.079\*(1.95) | 0.074\*\*(1.98) | 0.062(1.48) |  | 0.189\*\*\*(3.53) | 0.185\*\*\*(3.09) | 0.152\*\*\*(3.38) |  | 0.229(1.16) | 0.208(1.02) | 0.142(0.65) |  | 0.313\*\*(2.04) | 0.319\*(1.88) | 0.27\*(1.67) |
| CEO-chairman |  | -0.013(-0.24) | -0.016(-0.31) | -0.012(-0.23) |  | 0.069(1.07) | 0.056(0.81) | 0.079(1.09) |  | -0.028(-0.55) | -0.046(-0.84) | -0.054(-0.94) |  | -0.07(-0.67) | -0.074(-0.7) | -0.06(-0.59) |  | 0.006(0.05) | -0.045(-0.36) | -0.072(-0.52) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| FE industry |  | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |
| FE year |  | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| N |  | 567 | 579 | 479 |  | 567 | 579 | 479 |  | 567 | 579 | 479 |  | 567 | 579 | 479 |  | 567 | 579 | 479 |
| Pseudo R2 |   | 0.0825 | 0.0826 | 0.0834 |  | 0.1372 | 0.1352 | 0.1356 |  | 0.1183 | 0.116 | 0.1171 |  | 0.1042 | 0.1045 | 0.0962 |  | 0.0828 | 0.0818 | 0.0781 |
| This table presents the results of the moderating effect of the JOBs Act enactment in 2012 on the impact of IPO firms' earnings management on the degree of the SEC review for my sample of EGC IPOs between 2005 and 2017. Negative binomial regression is employed in this analysis. The dependent variables are SEC review including Duration (Model 1 - 3), #Letters (Models 4 - 6), #Comments (Model 7 - 9), #Core-accounting issues (Model 10 - 12) and #Non-core-accounting issues (Models 13 - 15). The independent variables of interest are JOBS Act and proxies od earnings management including; DACC (Model 1, 4, 7, 10, 13) , ACFO (Model 2, 5, 8, 11, 14) and ADISEXP (Model 3, 6, 9, 12, 15). Moderating effects is indicated by interaction of earnings management proxies and JOBS Act. EM proxies and the dummy variable JOBS Act are mean centered. The regressions include year fixed effects and industry fixed effects using 12 Fama-French industry. Results from Z-statistics are presented in parentheses below coefficient estimates, and are based on standard errors which are robust and clustered at the year level. \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% levels, respectively, based on a two-tailed test. |

**Table 7. Robustness test of the effect of earnings management on the SEC review**

|  |
| --- |
| **Panel A. IPO firms filing the drafts of their registration statements** |
|  |  | *Duration* |  | *#Letters* |  | *#Themes* |  | *# Core-accounting issues* |  | *#Non-Core-accounting issues* |
|  |  | (1) | (2) | (3) |  | (4) | (5) | (6) |  | (7) | (8) | (9) |  | (10) | (11) | (12) |  | (13) | (14) | (15) |
| Draftfiling |  | -0.515\*\*\*(-7.18) | -0.503\*\*\*(-7.11) | -0.483\*\*\*(-5.31) |  | -0.576\*\*\*(-5.51) | -0.579\*\*\*(-5.77) | -0.616\*\*\*(-5.79) |  | -0.845\*\*\*(-8.13) | -0.839\*\*\*(-7.66) | -0.838\*\*\*(-6.98) |  | -1.554\*\*\*(-11.97) | -1.543\*\*\*(-10.9) | -1.569\*\*\*(-11.07) |  | -1.626\*\*\*(-12.99) | -1.62\*\*\*(-12.33) | -1.647\*\*\*(-11.18) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DACC |  | 0.026\*\*\*(4.11) |  |  |  | 0.022\*\*\*(2.73) |  |  |  | 0.17(1.37) |  |  |  | 0.033\*\*\*(3.14) |  |  |  | 0.426(0.8) |  |  |
| ACFO |  |  | 0.008\*\*(2.2) |  |  |  | 0.009(0.68) |  |  |  | 0.021(1.19) |  |  |  | 0.014(0.86) |  |  |  | 0.069(1.51) |  |
| ADISEXP |  |  |  | -0.015\*\*\*(-6.52) |  |  |  | -0.008(-1.06) |  |  |  | -0.015(-0.84) |  |  |  | -0.008(-0.98) |  |  |  | -0.038(-1.1) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Control |  | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| FE industry |  | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |
| FE year |  | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |  | Included | Included | Included |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| N |  | 567 | 579 | 479 |  | 567 | 579 | 479 |  | 567 | 579 | 479 |  | 567 | 579 | 479 |  | 567 | 579 | 479 |
| Pseudo R2 |  | 0.0884 | 0.0878 | 0.0886 |  | 0.1462 | 0.1442 | 0.1469 |  | 0.1398 | 0.1378 | 0.1381 |  | 0.1251 | 0.1241 | 0.1163 |  | 0.0974 | 0.0978 | 0.0943 |
| **Panel B. Simultaneous effects of abnormal cash flow from operations and other earnings management proxies** |
|  |  |  | *Duration* |  |  | *#Letters* |  |  | *#Themes* |  |  | *# Core-accounting issues* |  |  | *#Non- Core-accounting issues* |
|  |  |  | (1) | (2) |  |  | (4) | (5) |  |  | (7) | (8) |  |  | (10) | (11) |  |  | (13) | (14) |
| DACC |  |  | 0.023\*\*\*(4.95) |  |  |  | 0.026\*\*(2.18) |  |  |  | 0.043(1.36) |  |  |  | 0.042\*\*\*(3.18) |  |  |  | 0.1(1.45) |  |
| DACC\_ACFO |  |  | 0.004(0.97) |  |  |  | -0.005(-0.31) |  |  |  | -0.011(-0.6) |  |  |  | -0.002(-0.1) |  |  |  | -0.07\*(-1.78) |  |
| ADISEXP |  |  |  | -0.018\*\*(-2.47) |  |  |  | -0.006(-0.41) |  |  |  | -0.036\*(-1.7) |  |  |  | -0.015(-0.85) |  |  |  | -0.096\*(-1.84) |
| ADISEXP\_ACFO |  |  |  | 0.01(0.62) |  |  |  | 0.002(0.09) |  |  |  | 0.047\*\*\*(5.84) |  |  |  | 0.003(0.11) |  |  |  | 0.08\*\*\*(2.65) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Control |  |  | Included | Included |  |  | Included | Included |  |  | Included | Included |  |  | Included | Included |  |  | Included | Included |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| FE industry |  |  | Included | Included |  |  | Included | Included |  |  | Included | Included |  |  | Included | Included |  |  | Included | Included |
| FE year |  |  | Included | Included |  |  | Included | Included |  |  | Included | Included |  |  | Included | Included |  |  | Included | Included |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| N |  |  | 567 | 479 |  |  | 567 | 479 |  |  | 567 | 479 |  |  | 567 | 479 |  |  | 567 | 479 |
| Pseudo R2 |  |  | 0.0825 | 0.0835 |  |  | 0.1365 | 0.1355 |  |  | 0.1165 | 0.1152 |  |  | 0.1040 | 0.0944 |  |  | 0.0818 | 0.0776 |
| This table presents the robustness tests to validate the sensitivity of the SEC review on S-1 filings to earnings management engaged by IPO firms when preparing the S-1 filings in the period from 12th May 2005 to 31st December 2017. Negative binomial regressions are employed in this analysis. The dependent variables are the extent of the SEC review including; *Duration, #Letters, #Themes , # Core-accounting issues and #Non-core-accounting issues.* Panel A examines the impact of the draft registration statement on the sensitivity of the SEC review to earnings management within the S-1 filing.  *Draftfiling* equals to 1 if the issuing firm has filed a draft registration statement under the “de-risking” provision of the JOBS Act, and 0 otherwise. Panel B examines the simultaneous effect of abnormal cash flow from operations and other earnings management proxies on the SEC review attributes. *DACC\_ACFO* equals the sum of abnormal accruals and abnormal cash flows from operations. ADISEXP\_ACFO equals the sum of abnormal discretionary expense and abnormal cash flows from operations. All other variables are defined in Appendix 1. The regressions include S-1 filings year fixed effects and industry fixed effects using 12 Fama-French industry. Results from Z-statistics are presented in parentheses below coefficient estimates, and are based on standard errors which are robust and clustered at the industry level. \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% levels, respectively, based on a two-tailed test. |

1. The Better Regulation Task Force, set up by the British government in 1997, emphasised five principles of effective regulatory settings including proportionality, accountability, consistency, transparency and targeting. (<https://publications.parliament.uk/pa/ld200304/ldselect/ldconst/68/6810.htm>) [↑](#footnote-ref-1)
2. <https://www.casey.senate.gov/newsroom/releases/casey-to-sec-protect-us-investors-in-chinese-ipos-transactions-could-leave-us-investors-with-few-safeguards-if-they-invest-in-shell-corporations> [↑](#footnote-ref-2)
3. EGC status is given to companies having total annual gross revenues less than $1 billion. [↑](#footnote-ref-3)
4. These findings are in a similar vein to those suggest that auditors, investors and regulators are less likely to uncover sales-based earnings management. Gounopoulos & Pham (2017) and Alhadab & Clacher (2018) explain that high sales growth may constrain the detection of sales-based manipulation. Cunningham et al. (2020) suppose that the SEC tend to focus on accruals quality (i.e., AEM) rather than real economic transactions (i.e., REM). No researcher has explored how regulators detect sales-based manipulation during the IPO approval process. We contribute such evidence on the ineffectiveness of SEC review in addressing sales-based earnings management within IPO registration statement [↑](#footnote-ref-4)
5. The SEC started publishing the IPO firms’ filings and the SEC comment letters from 12th May, 2005. [↑](#footnote-ref-5)
6. We restrict our focus to initial comment letters, i.e. the first comment letter issued by the SEC for each IPO. We do so to avoid duplication, as subsequent comment letters tend to involve ongoing discussion of issues identified in the initial letter and/or merely acknowledge the company’s response. [↑](#footnote-ref-6)
7. According to the likelihood tests of overdispersion, SEC review attributes (Duration, #Letters, #Themes, #Core-accounting issues, #Non-core-accounting issues) display the signs of overdispersion. Therefore, negative binomial regressions are more appropriate than Poisson regressions which is also a method to model relationships among discrete and countable variables. [↑](#footnote-ref-7)
8. A variable is discrete if the set of its values is finite or countable and these values are obtained through the counts of occurrence (Greene, 2012). [↑](#footnote-ref-8)
9. Strong correlations are observed among the three proxies of earnings management as shown in Table 3. Therefore, in the empirical models, the effects of these three proxies on the extent of SEC reviews are examined in separate models in order to avoid multicollinearity problems. [↑](#footnote-ref-9)
10. Standard errors are clustered at the industry level in order to mitigate possible correlations across IPO firms within a given industry (Petersen, 2009; Rogers, 1994). Our study does not cluster at the year level since there in no appreciable difference in clustered standard errors as compared with default standard errors (Petersen, 2009) [↑](#footnote-ref-10)
11. We conduct mean centering EM proxies and the dummy variable *JOBS Act* before running Equation 3 to alleviate the collinearity between EM proxies and the interaction *EM proxies\*JOBS Act* (Echambadi & Hess, 2007) [↑](#footnote-ref-11)
12. As compared with statistics reported for similar proxies in other studies on the topic (i.e. Ertimur & Nondorf, 2006; and Li & Liu, 2017), SEC review proxies appear to have low averages. This is likely to be because we include the period after the passing of JOBS Act which was enacted to reduce regulatory burdens on IPO firms. [↑](#footnote-ref-12)
13. Gounopoulos & Pham (2017) observe similar mean value and median value of REM as compared with the study. Specifically, the mean value of abnormal cash flow from operations and abnormal discretionary expense are -0.10 and 0.65 respectively, and their median value are -0.03 and 0.25, respectively. Gounopoulos & Pham (2018) identify similar mean value and median of the abnormal accruals to the study, which are -0.21 and -0.07, respectively. [↑](#footnote-ref-13)
14. For contrast, the Internal Revenue Service (IRS) classify IPO firms as small (or large) when they have total assets less (or greater) than $10 million. [↑](#footnote-ref-14)
15. Appendix E shows the marginal effects of *DACC, ADISEXP, ACFO* on SEC review attributes in more detail. [↑](#footnote-ref-15)
16. As EGC IPOs account for the majority (i.e., 90%) of our main sample, we run Equation 2 and 3 on the whole sample rather than the sample of EGC IPOs to make the results more comparable to the results obtained from the estimation of Equation 1. Results are similar when restricting the sample to firms below $1bn in sales which would qualify for EGC status under the Ac [↑](#footnote-ref-16)
17. Coefficients on *DACC* and *DACC\*JOBS Act* in column (4) consistently positive, though insignificant. However, when we estimate Equation 2 separately for the pre- and post-JOBS Act periods, untabulated Chow-test results reveal that *DACC* is positively related to #*Letters* only in the post-JOBS Act period, indicating that the effectiveness of the SEC review in addressing accruals-based EM under the Act. [↑](#footnote-ref-17)
18. We multiply the abnormal accruals by negative one to have the same interpretation as the abnormal cash flow from operations. [↑](#footnote-ref-18)
19. Specifically, the discretionary accruals is calculated as the difference between total accruals and non-discretionary accruals [↑](#footnote-ref-19)
20. There are two methods often employed in various prior literature, including statement-of-cash-flows method (CFM) and balance-sheet method (BSM) (Ronen and Yaari, 2008). When comparing these two methods, Hribar and Collins (2002) find that total accruals captured by the CFM are superior since it mitigates the non-articulation problem of the BSM. [↑](#footnote-ref-20)
21. Following Francis et al. (2012), we also exclude from the estimations IPO firms issuing their IPOs within 2 years of the issuers in the sample. [↑](#footnote-ref-21)
22. Due to the limited data availability of R&D and advertising expense, we follow Ali & Zhang (2015) by setting the values of these expenses to 0 if their data are missing but data for selling, general, and administrative expense is available. [↑](#footnote-ref-22)