

# **Non-GAAP Earnings Disclosure and IPO Pricing**

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## **Abstract**

The disclosure of customized (non-GAAP) earnings measures is increasingly common among firms undergoing initial public offerings (IPOs). This disclosure practice is heavily debated with arguments centering on whether non-GAAP measures are informative or whether they simply window dress earnings performance. We contribute to this debate by investigating the underlying determinants of non-GAAP disclosure and how these metrics influence IPO price formation. Using a sample of 696 book-built IPOs completed from 2003 to 2012, we find that firms disclosing non-GAAP earnings figures exclude an economically significant amount of income statement line items in calculating the non-GAAP metric. Our manual inspection of IPO prospectuses reveals that the majority of these exclusions pertain to recurring expenses. We find that the disclosure of non-GAAP earnings in IPO filings is largely influenced by (1) weak GAAP-based performance, (2) industry-peer effects, (3) litigation risks, and (4) the presence of venture backing. Our pricing tests indicate that non-GAAP IPOs exhibit greater underpricing and post-issue return volatility, and that these effects increase with the magnitude of (low-quality) recurring exclusions. These results point to greater information uncertainty surrounding the disclosure of nonstandard earnings, consistent with arguments of window dressing. We also find that non-GAAP information is strongly associated with negative price revisions after book building, indicating possible overvaluation during initial price setting. Additional analyses suggest that this initial overvaluation partly reflects agency conflicts between issuers and underwriters. Taken together, our results extend the non-GAAP earnings literature to the IPO setting and provide further evidence on the role of accounting-based information in IPO price formation.

**Keywords:** non-GAAP, IPOs, underpricing, price revision, prospectus, disclosure

**JEL Codes:** D84, G14, M41

## I. INTRODUCTION

In recent years, companies undergoing initial public offerings (IPOs) have increasingly insisted that they be evaluated based on nonstandard performance measures that do not conform to Generally Accepted Accounting Principles (GAAP), often referred to as non-GAAP earnings. For example, during the 2012–2014 period, 59% of the companies going public disclosed a customized earnings measure that departs from traditional GAAP accounting (Rapoport 2015).<sup>1,2</sup> This change represents an increase of roughly 11% compared to the disclosure rate for IPOs completed during 2010 and 2011. Even more striking is that the non-GAAP disclosure rate for IPO firms is substantially higher than that observed for already-public firms (Bentley, Christensen, Gee, and Whipple 2015).<sup>3</sup> Recent survey evidence also indicates significant variety in the earnings adjustments made by IPO firms. For instance, PwC (2014) reports that 80% of IPO prospectuses containing non-GAAP earnings numbers have at least one adjustment not generally excluded by public companies. These uncommon adjustments include income statement line items such as consulting fees, accretion charges, add-ins of deferred or unearned revenues, stock-symbol acquisition costs, and store opening costs (Raice and Wingfield 2011; PwC 2014; Rapoport 2015).

Despite the increased prominence of non-GAAP earnings measures in IPO prospectuses, the academic literature has yet to investigate this phenomenon. We explore this emerging type of disclosure by investigating (1) the factors influencing the discretionary disclosure of non-GAAP earnings in IPO filings and (2) how these disclosures affect the IPO price formation process with

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<sup>1</sup> The statistics reported in Rapoport (2015) are based on hand-collected data for the period, January 2010 to November 2014. This data was gathered by Audit Analytics and we thank Olga Usvyatsky for the data underlying these statistics.

<sup>2</sup> This disclosure trend is not restricted to smaller, less-monitored IPOs. Indeed, nine of the 10 largest IPOs in 2014 disclosed some form of nonstandard earnings in the prospectus (Rapoport 2015). Survey-based evidence also indicates that, for the period January 2010 to June 2011, half of the 50 largest venture-backed IPOs disclosed a non-GAAP financial metric (WSGR 2011). This proportion declined to 32% in 2013, presumably due to the SEC's increased scrutiny of these measures in IPO prospectuses and other public company filings (Chasan 2014).

<sup>3</sup> Using computer-mined data from all earnings announcements filed with the SEC, Bentley et al. (2015) find an average non-GAAP disclosure rate of 49% for public firms over the 2010-2013 period. The comparable rate for IPO firms is about 54% when we focus on the overlapping 2010-2013 period of the Audit Analytics survey.

specific focus on first-day returns, offer price revisions, and post-issue return volatility. We also examine the common line items IPO firms exclude when recasting GAAP earnings to a non-GAAP basis and whether these exclusions are economically significant. Finally, using proxies for the bargaining position of issuers relative to underwriters, we assess whether the relation between non-GAAP earnings and IPO pricing partly reflects agency conflicts between underwriters and issuers (Loughran and Ritter 2002; Willenborg, Wu, and Yang 2015).

Our focus on the disclosure of non-GAAP earnings in IPO prospectuses and its pricing implications is important for several reasons. First, there has been considerable debate on the informativeness of nonstandard performance measures in IPO filings. On the one hand, managers argue that adjusted earnings metrics present a more transparent view of the company's *current* earnings performance, enhancing investors' ability to forecast *future* performance and thereby value the firm. On the other hand, critics contend that adjusted earnings portray an inflated view of future performance and IPO value, with regulators and standard setters expressing concern about (1) the complexity and lack of comparability of these measures across firms, (2) their undue prominence in prospectuses, and (3) their potential to mislead investors (Usvyatsky 2015). This debate has generated extensive media coverage as a result of SEC scrutiny of customized earnings reported by high-profile IPOs (e.g., Groupon and Twitter), along with recent SEC warnings of possible regulatory actions to rein in non-GAAP abuses (Michaels and Rapoport 2016).

Second, in an extensive survey of chief financial officers (CFOs), Brau and Fawcett (2006) report that CFOs view strong earnings performance as the most positive signal of IPO value. They also find that while CFOs recognize the importance of presenting strong earnings in the IPO prospectus, they are not overly concerned about the potential negative implications of "window dressing" reported earnings. These results suggest that corporate executives have strong motivations to manage investors' earnings perceptions during the IPO process, despite any potential negative backlash. While accrual management is one tool that IPO firms could use to

window dress earnings, the extant evidence on this behavior is quite mixed. Prior studies document abnormally high accruals in the year firms go public (Teoh, Welch, and Wong 1998a, Teoh, Wong, and Rao 1998b). Conversely, recent studies find little evidence of accrual management and that firms, in fact, report more conservatively before going public (Ball and Shivakumar 2008, Armstrong, Foster, and Taylor 2015, Ertimur, Sletten, Sunder, and Weber 2015). Our study sheds new light on this issue by exploring an alternative perception management tool—the disclosure of nonstandard earnings numbers—which is argued to be of relatively lower cost compared to accrual management (Doyle, Jennings, and Soliman 2013, Black et al. 2016).<sup>4</sup>

We base our investigation on a sample of 696 book-built IPOs completed during the 2003-2012 period as reported in the Thomson Financial SDC Platinum New Issues database. For each IPO, we retrieve the final prospectus from SEC EDGAR and hand-collect GAAP and non-GAAP earnings information. We also manually classify the various income statement items firms exclude when arriving at the non-GAAP earnings figure. Using textual analytics, we also construct a measure of non-GAAP emphasis based on the frequency of non-GAAP keywords appearing in the prospectus. Our data reveal that roughly 36% of IPO firms disclose an adjusted earnings metric in the final prospectus. This disclosure practice increases dramatically over our sample period—61% of the 2012 filings report non-GAAP earnings compared to 22% in 2003. The adjusted earnings in IPO filings are generally higher than GAAP earnings and primarily exclude significant recurring expenses such as depreciation and amortization costs, interest-related charges, and stock-based compensation. Some firms also undo GAAP revenue recognition rules by adding deferred or unearned revenues to net income. Interestingly, we find that an economically significant proportion of firms' earnings exclusions pertain to line items that fall outside of common classifications, consistent with anecdotes in the business press.

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<sup>4</sup> Indeed, Black et al. (2016) find that in deciding among different perception management tools, firms use non-GAAP reporting as a substitute for both real and accruals management.

Using logit analyses, we investigate the influence of several factors on non-GAAP earnings disclosure and the emphasis placed on these metrics in IPO prospectuses. We find that the propensity to disclose non-GAAP earnings decreases with litigation risks and increases with peer-firm disclosure rates, venture backing, and the use of adjusted metrics in debt covenant restrictions. More importantly, we find that the disclosure and emphasis of non-GAAP earnings is uniquely related to GAAP operating performance. Specifically, IPO firms are less likely to disclose and emphasize adjusted metrics when GAAP earnings are extremely favorable or unfavorable, suggesting an inverted U-shaped relation between GAAP earnings performance and non-GAAP reporting. We also find that firms tend to disclose and emphasize non-GAAP earnings when they report weak GAAP earnings, *but* strong GAAP cash flows. This result is consistent with positive cash flows providing firms with more flexibility to recast poor GAAP earnings into better “near-cash” performance. Overall, these findings highlight that inferences based solely on the direction of GAAP earnings do not provide a complete picture of firms’ non-GAAP disclosure choices.

Our next set of analyses explores the role of non-GAAP earnings information in IPO price formation and the underlying premises of this process. Our results indicate that non-GAAP IPOs exhibit greater underpricing and post-issue return volatility, and that this relation increases with the magnitude of firms’ recurring item adjustments. This evidence suggests that nonstandard earnings measures are associated with asymmetric information uncertainty, consistent with these measures providing obscure or window-dressed information about IPO value. Tests of pre-issue price revisions indicate that non-GAAP IPOs experience significant declines in the offer price after book building, especially when they exclude greater amounts of income-decreasing items. This finding suggests that non-GAAP earnings metrics contain low-quality information, which is indicative of lower IPO valuations. Moreover, this evidence further suggests that underwriters initially underweight the negative pricing implications of non-GAAP information, thereby overvaluing the IPO when setting the initial price range. Extended analyses suggest that this

pricing behavior is partly attributable to agency conflicts between underwriters and issuers. Consistent with Loughran and Ritter (2002) and Willenborg et al. (2015), our evidence suggests that non-GAAP issuers with stronger bargaining positions receive higher initial valuations from underwriters, with almost full downward price adjustments after book building.

This study makes several important contributions to the literature. We provide the first evidence of non-GAAP disclosure practices in the IPO setting. Contrary to prior public-firm research, our results suggest that GAAP operating performance has an asymmetric effect on the disclosure of nonstandard earnings by IPO firms. Furthermore, we extend prior work on the role of accounting-based information in IPO price formation. Our empirical tests suggest that non-GAAP earnings information play a significant role in explaining IPO underpricing and pre-issue price adjustments during book building, even after controlling for standard GAAP accounting information and other IPO characteristics. Finally, our evidence point to potential earnings perception management in the use of nonstandard measures by IPO firms. These findings have practical implications for regulators and standard setters given recent concerns about the discretionary use of non-GAAP earnings disclosure to influence perceptions of IPO value.

## **II. BACKGROUND LITERATURE AND MOTIVATION**

When a private firm decides to go public, one of the first steps is to prepare and file an offering prospectus with the SEC. The prospectus is generally prepared by management with input from the underwriters, the firm's legal counsel, and external auditors who opine on whether the financial statements are prepared in accordance with GAAP. The prospectus is then used by the underwriters as a marketing tool in road shows and investor meetings to solicit demand for the IPO shares. The document provides the first public view of the issuing firm's business model, future prospects, and ownership structure. Most importantly, the document contains up to three years of audited financial statements along with supplementary accounting information deemed

relevant by managers. The voluntary inclusion of non-GAAP earnings as a supplementary measure of firm performance has become increasingly popular in recent years. However, despite this trend, prior research provides very little empirical evidence about the role of non-GAAP disclosure in the IPO process. We seek to understand this phenomenon by investigating the factors influencing the disclosure of non-GAAP earnings in IPO filings and the pricing implications of these measures.

## **2.1 Earnings Information and IPO Pricing**

Brau and Fawcett (2006) highlight the importance of earnings information in the IPO process by documenting that CFOs view strong historical earnings as the most important signal conveyed to investors regarding IPO value. While our study is the first to investigate the role of non-GAAP earnings in IPO price formation, prior studies examine the valuation usefulness of GAAP-based earnings information. However, the evidence from this literature stream is quite mixed, with some studies concluding that GAAP-based earnings play a limited role in IPO pricing.

Using a sample of IPOs with positive pre-issue earnings, Klein (1996) finds a positive association between pre-issue earnings and both the offer price and the first-day closing price. With a similar focus on IPOs with positive earnings, Kim and Ritter (1999) study the value-relevance of pre-IPO earnings multiples (e.g., price-earnings) using a comparable- or peer-firm approach. They find weak associations between the earnings multiples of the issuing firm and those of recent same-industry IPOs. Kim and Ritter (1999) therefore infer that pre-issue earnings have little relevance, perhaps due to the transitory nature of past earnings in private firms.<sup>5</sup>

Two later studies examine the pricing implications of GAAP earnings using IPO samples overlapping the Internet era of the mid- to late-1990s. In contrast to prior work, Aggarwal, Bhagat,

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<sup>5</sup> Kim and Ritter (1999) also examine the value-relevance of price-earnings (PE) multiples based on ‘street’ earnings forecasts provided by Renaissance Capital, a buy-side research firm specializing in IPOs. They find that PE multiples based on current-year and one-year-ahead ‘street’ earnings forecasts have greater predictability compared to multiples based on pre-IPO earnings. This evidence could hint at the incremental usefulness of adjusted earnings measures given that analysts typically strip out transitory earnings items when arriving at street earnings forecasts. However, the improvement in predictability could simply reflect the future-oriented nature of analyst forecasts, rather the superiority of adjusted metrics in IPO valuation.



and Rangan (2009) consider the valuation of IPOs with positive *and* negative pre-IPO earnings.<sup>6</sup> Their results suggest a V-shaped relation between IPO value and GAAP-based earnings. IPOs with large negative (positive) earnings are associated with higher valuations compared to IPOs with small negative (positive) earnings. This result is consistent with large negative earnings proxying for high growth opportunities. They also find a stronger relation between pre-IPO earnings and IPO value during the Internet era, contrary to assertions in the business press that GAAP earnings were of less importance in pricing new-economy IPOs.

Bartov, Mohanram, and Seethamraju (2002) study the pricing effect of pre-IPO earnings and operating cash flows for a matched sample of Internet and non-Internet IPOs. Positive earnings and cash flows are positively associated with the initial offer price for non-Internet IPOs, whereas negative cash flows are negatively associated with the initial price for Internet IPOs.<sup>7</sup> Interestingly, for both sets of IPOs, they do not find a significant effect of earnings and cash flows on the first-day closing price nor the first-day price change. These results have been interpreted as evidence of a limited pricing role of GAAP accounting information reported in IPO filings (Berger 2002).

In a recent study, Willenborg et al. (2015) revisit the role of GAAP financial information on IPO price formation, with specific focus in the post-Internet era. Similar to Aggarwal et al. (2009), they document an asymmetric effect of pre-IPO earnings, and especially operating cash flows, on offer price revisions as well as initial first-day returns. IPOs firms with negative (positive) earnings and cash flows experience large negative (small positive) price revisions after book building, followed by low (high) first-day returns. This evidence is consistent with the agency conflict (bargaining power) theory of IPO pricing as put forth by Loughran and Ritter (2002). This

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<sup>6</sup> This sample choice is an important innovation given that 63% of Internet IPOs reported negative earnings compared to about 20% of IPOs in pre-1990 periods.

<sup>7</sup> The pricing effect of earnings and cash flows are similar, albeit with one notable difference, when they examine the final offer price. Positive and negative earnings are related to the final offer price for Internet IPOs, while only positive earnings are associated with the final offer price for non-Internet IPOs. This differential effect could reflect the revelation of new information during book building or the influence of underwriter incentives on price setting.

framework suggests that strong-performing issuers acquiesce to underwriters' low-balling of the offer price, resulting in small offer price revisions after book building and large price run ups on the first trading day. Weak-performing issuers, on the other hand, negotiate more aggressively with underwriters, resulting in large offer price revisions and small first-day returns.

Our study extends this line of research by assessing the effect of non-GAAP earnings on IPO pricing, while controlling for the information content of GAAP-based earnings. Similar to Willenborg et al. (2015), we pay particular attention to offer price revisions and first-day stock returns, along with post-IPO return volatility. We also address the oft-raised issue of partial price adjustment and underpricing in IPOs and how this relates to non-GAAP reporting.

## **2.2 Non-GAAP Earnings Disclosure in Public Firms**

The disclosure of non-GAAP earnings is not unique to IPO firms and has become commonplace among public firms over the last two decades. Public-firm presentation of these alternative metrics is also controversial, generating substantial debate among corporate executives, regulators, investors, and standard setters. On one side of the debate, managers often argue that non-GAAP earnings metrics better portray the firm's "core" performance relative to GAAP earnings, which contain transitory or one-time items. On the other side, critics contend that some firms opportunistically report adjusted metrics to inflate investor perceptions of firm performance.

Prior researchers has assessed these competing views, with a number of studies finding evidence consistent with both information-based and opportunistic motives. Consistent with the informational view, prior studies find that some managers disclose nonstandard earnings when comparable GAAP metrics are less informative or contain obscure transitory items (Lougee and Marquardt 2004; Bowen, Davis, and Matsumoto 2005; Curtis, McVay, and Whipple 2014). These studies also find that non-GAAP earnings are more predictive of future earnings performance relative to GAAP earnings, and that investors and analysts perceive non-GAAP earnings as more value-relevant (Bradshaw and Sloan 2002; Bhattacharya, Black, Christensen, and Larson 2003;

Bentley et al. 2015). In line with managerial opportunism, prior evidence suggests that the items excluded from GAAP earnings, especially recurring items, are of poor quality and are used by some firms to window dress earnings (Black and Christensen 2009; Frankel, McVay, and Soliman 2011; Barth, Gow, and Taylor 2012; Brown, Christensen, Elliott, and Mergenthaler 2012; Doyle et al. 2013). These studies also find that, while some investors ignore low-quality exclusions, others do not fully understand the pricing implications of these earnings items (Doyle, Lundholm and Soliman 2003; Choi, Lin, Walker, and Young 2007; Brown, Christensen, and Elliott 2012).

We extend this body of research by documenting the determinants and pricing implications of non-GAAP earnings disclosure in the IPO setting. The use of non-GAAP earnings in IPO filings has similar opposing views on whether adjusted measures reflect managerial opportunism or the attempt to better inform potential investors. One could argue that the determinants and price effects of non-GAAP disclosure in the IPO setting should mirror the evidence documented for public firms. However, predictions of the direction and economic magnitude of these effects (if any) are unclear given conflicting evidence on the underlying motives of non-GAAP disclosure.

Furthermore, the distinctive features of the IPO process suggest that the underlying factors and pricing effects of non-GAAP disclosure are likely to differ greatly for IPOs compared to public firms. First, IPOs are typically characterized by high uncertainty about the issuing firm, high information asymmetries between the issuer and potential investors, and the existence of few public sources of fundamental information (see Ritter and Welch 2002 for a review of the IPO literature). This high level of opacity could bolster firm motives to use non-GAAP reporting as an informational tool. Conversely, high asymmetries could provide greater opportunities for firms to use non-GAAP adjustments to boost investors' perceptions of IPO value, and in turn, their demand for the offering. Second, in contrast to the public-firm setting, underwriters have significant influence on the interplay of demand and supply in price setting and share allocation (Ritter and Welch 2002). Underwriters (and potential investors) commonly use earnings multiples to value

IPOs (Teoh et al. 1998b; Kim and Ritter 1999; Jenkinson and Jones 2009). Thus, issuers have strong incentives to report adjusted earnings to improve their bargaining position with underwriters and investors regarding share value.<sup>8</sup> Together, these unique features underscore the importance of investigating the pricing implications of non-GAAP earnings disclosure in the IPO setting.

### **2.3 Earnings Perception Management in IPOs**

Our study also extends prior research on earnings perception management by IPO firms. These studies primarily assess the use of within-GAAP accrual management to window dress pre-issue earnings. However, the evidence from this research is conflicting, with some studies concluding that IPO firms do not engage in earnings inflation.

Influential studies by Teoh et al. (1998a, b) document that IPO firms have high issue-year earnings and abnormal accruals, which are predictive of negative future earnings and stock returns.<sup>9</sup> More recent studies challenge this research and question the use of IPO-year data which capture both pre- and post-IPO accruals. Ball and Shivakumar (2008) argue that high litigation costs and the intense scrutiny of IPO filings by regulators and market monitors discourage firms from aggressive earnings reporting. Consistent with this argument, they find little evidence of accruals management and in fact, find more conservative reporting in the pre-IPO year.<sup>10</sup> Fan (2007) finds that abnormal accruals are highest in the IPO year and are strongly associated with future earnings declines. She however finds that issue-year accruals are unrelated to future stock returns, which is inconsistent with arguments of window-dressing. In a similar vein, Armstrong et al. (2015) find an insignificant effect of IPO-year abnormal accruals on the issue price and post-

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<sup>8</sup> This bargaining role of non-GAAP reporting could reflect information-based and opportunistic motives. For instance, some issuers could use non-GAAP adjustments as a means of providing more transparent earnings information so that underwriters and potential investors can better price the IPO. Conversely, other issuers could use adjusted earnings simply as a bargaining tool to obtain high valuations, irrespective of the IPO's true value.

<sup>9</sup> Darrrough and Rangan (2005) also provide evidence of real earnings management in the IPO-year. Specifically, they find that IPO firms are more likely to cut R&D spending (and thereby boost earnings) in the IPO-year when insiders sell shares as a part of the offering. They also find high IPO-year accruals when insiders sell shares in the IPO.

<sup>10</sup> Venkataraman, Weber, and Willenborg (2008) find similar evidence of conservative reporting in pre-IPO periods.

IPO stock returns, suggesting that these accruals do not benefit managers and instead result from normal economic activity in the IPO year. Lastly, Ertimur et al. (2015) examine the level of abnormal accruals during two distinct periods: the quarter immediately preceding the IPO and the quarters during the lockup period (the 180 day post-IPO period during which pre-IPO shareholders are restricted from selling shares). They do not find evidence of pre-IPO accrual management, but instead find strong evidence of upward accrual management in anticipation of lockup expiration.

Prior studies argue that non-GAAP adjustments function as a less costly perception management tool compared to abnormal accruals, which tend to reverse in subsequent periods (Doyle et al. 2013; Black et al. 2016). Some unique features of non-GAAP adjustments are that they do not involve the booking of accounting entries, and do not affect actual operations or financial statement balances. Non-GAAP adjustments do not reverse in future periods and can be made after the financial statements are prepared. In addition, regulatory guidelines on non-GAAP reporting are less prescriptive than GAAP standards, and give managers considerable discretion over how they compute nonstandard metrics. These features suggest that non-GAAP reporting could be an attractive window-dressing tool in the IPO setting. In this respect, our study aims to shed new light on how firms manage perceptions of fundamental value when they go public.

### **III. SAMPLE, VARIABLE MEASUREMENT, AND DESCRIPTIVE EVIDENCE**

#### **3.1 Data and Sample Selection**

We construct our main sample by gathering data on all U.S. IPOs completed from 2003 through 2012 as reported in the Thomson Financial SDC Platinum New Issues database. We begin our sample period in 2003 to coincide with the SEC's approval of Regulation G and amendments to Item 10(e) of Regulation S-K (January 2003), which govern the usage of non-GAAP financial

measures in public disclosures and documents filed with the SEC.<sup>11</sup> This sampling choice ensures that our results are not confounded by regulatory intervention into non-GAAP reporting.<sup>12</sup>

Following prior IPO research, we eliminate IPOs classified as American Depository Receipts (ADRs), real estate investment trusts (REITs), closed-end funds, and reverse leveraged buy-outs (LBOs). We also exclude unit and right offerings, issues by financial firms (SIC 6000 – 6999), offerings where the offer price is less than \$5, and offerings not listed on the NYSE, AMEX, or NASDAQ.<sup>13</sup> Next, we match each IPO with the CRSP database, from which we gather data on the closing price as of the first trading day and stock returns for subsequent periods. We also collect the founding date of each IPO firm from the Field-Ritter data set, as used in Field and Karpoff (2002) and Loughran and Ritter (2004).<sup>14</sup> These data selection criteria result in a final sample of 696 IPO firms from which we identify 252 firms that disclose a non-GAAP earnings metric in the final prospectus. We describe our non-GAAP identification process in the section below.

## **3.2 Variable Measurement**

### ***3.2.1 Characteristics of Non-GAAP Disclosures in IPO Filings***

We construct several measures of firms' non-GAAP disclosure practices and the characteristics of the adjusted earnings information. We set these variables to zero for IPO firms

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<sup>11</sup> Regulation G applies to all public disclosure of non-GAAP metrics with Regulation S-K 10(e) providing additional requirements for non-GAAP measures disclosed in SEC filings including IPO prospectuses (PwC 2014). The primary requirements of Regulation G are that (1) non-GAAP metrics should not be misleading, (2) they should be accompanied, with equal or greater prominence, by the most directly comparable GAAP measure, and (3) a quantitative reconciliation of the differences between the non-GAAP and comparable GAAP metrics should be provided. Regulation S-K 10(e) also prohibits the following: (1) labeling adjustments as nonrecurring, infrequent, or unusual when the income statement line item is reasonably likely to recur within two years or has occurred within the prior two years, (2) presenting non-GAAP metrics on the face of GAAP financial statements or accompanying footnotes, and (3) the use of non-GAAP titles or descriptions that are (confusingly) similar to GAAP titles.

<sup>12</sup> See Entwistle, Feltham, and Mbagwu (2006), Kolev et al. (2008), and Black, Christensen, Kiosse, and Steffen (2015) for evidence on the effect of Regulation G and other mandates on non-GAAP reporting by public firms.

<sup>13</sup> Some studies exclude equity carve-outs (or “spin-offs”) and offerings by limited partnerships (see Loughran and Ritter 2002; Bradley, Jordan, and Ritter 2006). We do not exclude these offerings but instead control for them in our empirical tests using indicator variables. Nonetheless, our results are unaffected when we exclude these offerings.

<sup>14</sup> We thank Jay Ritter for providing these data, available at <https://site.warrington.ufl.edu/ritter/ipo-data/>.

that do not report a non-GAAP earnings metric in the final prospectus. Appendix A summarizes our non-GAAP disclosure variables and all other measures outlined below.

**Disclosure of non-GAAP earnings metrics.** For each IPO, we download the final prospectus (i.e., S-1/A, Form 424, or any variant) from the SEC’s EDGAR FTP server. The EDGAR filings are matched to our SDC sample firms using the SEC’s Central Index Key (CIK). We create an indicator variable, *NONGAAP*, to identify those firms providing a non-GAAP earnings figure in the final prospectus. We code *NONGAAP* as one if we locate a non-GAAP earnings metric during our manual text search of the prospectus; zero otherwise. We also construct a measure of non-GAAP disclosure intensity based on the frequency with which specific non-GAAP keywords appear in the prospectus (*NGWORD\_PCT*). This measure captures the extent to which firms highlight nonstandard earnings when going public. To construct the measure, we programmatically remove HTML tags and graphics, and search each final prospectus for non-GAAP terminology such as “non GAAP”, “adjusted earnings”, “adjusted EBIT,” and other related terms.<sup>15</sup> Following prior studies of word usage in IPO filings (e.g., Loughran and McDonald 2013), we compute *NGWORD\_PCT* as the number of non-GAAP keywords for every 1,000 words of the Loughran and McDonald (2011) master dictionary that appear in the final prospectus.<sup>16</sup>

**Pre-IPO non-GAAP and GAAP accounting measures.** We hand-collect data on non-GAAP net income (*NG\_NI*), GAAP net income (*NI*), GAAP operating income (*OPINC*), and GAAP operating cash flows (*OCF*) from the most recent financial statements prior to the firm going public.<sup>17</sup> We annualize the income and cash flow measures for firms that provide interim financials for partial fiscal-year periods prior to the initial trade date. For firms providing annual

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<sup>15</sup> Our full set of keywords is: “non gaap”, “nongaap”, “earnings excluding”, “net income excluding”, “adjusted net income”, “adjusted loss”, “adjusted EBIT” (which also captures “adjusted EBITDA”), “cash earnings”, “earnings before”, “normalized EPS”, “normalized earnings”, “distributable cash flow”, “gaap adjusted”, and “cash loss.”

<sup>16</sup> The Loughran and McDonald (2011) word lists are available at Bill McDonald’s website: [https://www3.nd.edu/~mcdonald/Word\\_Lists.html](https://www3.nd.edu/~mcdonald/Word_Lists.html).

<sup>17</sup> We do not collect data on non-GAAP cash flows due to the sparseness of these metrics in our sample. Specifically, for a test sample of 20 IPOs, we identify only 2 prospectuses (10%) containing a non-GAAP cash flow metric.

financial statements, we collect pre-IPO income and cash flow data as of the fiscal year-end prior to initial trading. We scale these measures by average total assets, computed as total assets as of the current fiscal period-end plus total assets as of the prior period-end, divided by two.

We follow prior research (e.g., Aggarwal et al. 2009; Willenborg et al. 2015) and compute several measures of the absolute magnitude and direction of GAAP earnings and cash flow performance (i.e., positive versus negative) as well as the quartile ranks of earnings and operating cash flows in our sample. We define  $abs(NI)$  and  $abs(OCF)$  as the absolute values of GAAP net income ( $NI$ ) and GAAP operating cash flows ( $OCF$ ), respectively. We create separate indicator variables for firms reporting the following directional combinations of GAAP earnings and cash flow performance: (1) positive earnings and positive cash flows ( $posNI\_posOCF$ ), (2) positive earnings and negative cash flows ( $posNI\_negOCF$ ), (3) negative earnings and positive cash flows ( $negNI\_posOCF$ ), and (4) negative earnings and negative cash flows ( $negNI\_negOCF$ ). We also create indicator variables for each of the four quartiles of  $NI$  and  $OCF$  in which an issuer firm ranks, i.e.,  $NI\_Q_k$  and  $OCF\_Q_k$ , where  $k$  equals 1 through 4.

**Non-GAAP earnings exclusions.** We compute the total magnitude of firms' non-GAAP exclusions ( $EXCL_{TOTAL}$ ) as the difference between the annualized GAAP net income ( $NI$ ) and the non-GAAP net income ( $NG\_NI$ ) reported in the final prospectus. We then decompose  $EXCL_{TOTAL}$  into the following nonrecurring and recurring components: (1) the magnitude of nonrecurring exclusions ( $EXCL_{NONRECUR}$ ), calculated as the difference between the annualized versions of GAAP net income ( $NI$ ) and GAAP operating income ( $OPINC$ ), and (2) the magnitude of recurring exclusions, calculated as  $EXCL_{TOTAL}$  minus  $EXCL_{NONRECUR}$ . Following prior research (Kolev et al. 2008; Brown et al. 2012), we avoid the artificial creation of recurring exclusions by setting  $EXCL_{NONRECUR}$  as zero if  $EXCL_{TOTAL}$  equals zero. We scale all of the exclusion variables by average total assets as defined above. We must note that positive (negative) values of the earnings exclusion



variables indicate that income-decreasing expenses (income-increasing gains) were excluded from the respective GAAP income figure.

We also hand code the types of recurring and nonrecurring items that going-public firms exclude from the bottom line GAAP net income figure. For each type of exclusion, we construct an indicator variable coded one if the firms' IPO prospectus discloses such an adjustment, and zero otherwise. This coding process yields 16 main categories of recurring and nonrecurring adjustments (*Adjustments*) made by our sample firms over the 2003-2012 period. We also create a 17th category for "other" adjustments (*OTHER*). This category consists primarily of exclusions that do not fit readily into the more common categories. We construct broad classification variables coded as one if the firms' prospectus discloses at least one recurring (*RECUR*) or nonrecurring (*NONRECUR*) adjustment, and zero otherwise. Similar indicators are created for filings containing at least one special item (*SPECIAL*) or below-the-line (*BELOWLINE*) adjustment.

### ***3.2.2 IPO Pricing and Post-IPO Return Volatility***

Our measures of IPO pricing and post-IPO return volatility follow directly from prior literature. We focus our analyses on first-day returns, offer price revisions, and daily stock return volatility following the IPO date. The first-day returns and offer price revisions capture the well-known phenomenon of underpricing and partial price adjustment in book-built IPOs. The first-day returns also serve as an ex ante benchmark of asymmetric uncertainty, while post-IPO return volatility serves as an ex post benchmark. We compute first-day returns (*FIRSTDAYRET*) as the percentage change from the final offer price to the closing price on the first trading day. Offer price revisions (*REVISION*) are computed as the percentage change from the midpoint of the initial price range to the final offer price. We also create a separate variable for positive revisions in the offer price (*posREVISION*), consistent with Loughran and McDonald (2013). Finally, we compute post-issue return volatility (*RETVOL*) as the standard deviation of daily stock returns over one month beginning on the trading day immediately after the IPO date (+1 to +24 trading days).

### 3.2.4 Other Correlated Factors

We include several well-documented covariates of IPO pricing and non-GAAP reporting. These measures capture informational characteristics of the offering and its book building process as well as various economic incentives of the issuer firm and lead underwriter(s). Our first set of variables include ownership retention and insider selling, which proxy for signals of IPO value, the issuer's bargaining power with underwriters, as well as insider incentives to engage in non-GAAP reporting (Loughran and Ritter 2002; Ljungqvist and Wilhelm 2003; Brown et al. 2012; Willenborg et al. 2015). We define ownership retention (*SHARE\_RETAIN*) as one minus the number of shares sold in the IPO divided by the number of post-IPO shares outstanding. Insider selling (*INSIDER\_SELL*) is the number of shares sold by selling shareholders divided by the number of shares sold in the IPO. We hand-collect share data from the final prospectus given the sparseness of insider share data in SDC and the high error rate of SDC's data on post-IPO shares outstanding (see Ljungqvist and Wilhelm 2003).

Following Loughran and McDonald (2013), we measure the language tone of the final prospectus using the first principal component of the percentages of uncertain, negative, and weak modal words contained in the final prospectus (*TONE*). These percentages proxy for ex ante asymmetric uncertainty and are computed using the Loughran and McDonald (2011) word lists. We include pre-IPO market returns (*MKTRET*) to capture public information that arise during book building (Loughran and Ritter 2002; Ljungqvist and Wilhelm 2003). We compute *MKTRET* as the buy-and-hold returns of the CRSP NASDAQ value-weighted index over the 15 trading days prior to the IPO date. We include a separate variable for positive market returns (*posMKTRET*) to control for the differential effect of favorable public information (Loughran and Ritter 2002). We also control for the length of the book building process, measured as the natural log of the number of calendar days between the initial filing date and the IPO date (*DAYS*).

We measure the reputation of the lead underwriter (*TOPTIER*) using the Carter and Manaster (1990) rankings as updated by Loughran and Ritter (2004). We code *TOPUW* as one if the IPO's lead underwriter has an average Carter-Manaster ranking of eight or higher over the 1980–2011 period; and zero otherwise. Other IPO-specific factors include the natural log of IPO proceeds (*PROCEEDS*), firm age (*AGE*), and firm size (*ASSETS*), audit quality (*TOPAUDIT*), time trends (*TREND*), and whether the offering is classified as an equity carve-out (*SPINOFF*) or a limited partnership (*LTDPARTNER*). We also create indicator variables for firms with venture capital and private equity backing (*VENTURE*), those operating in high technology (*HITECH*) and high litigation risk industries (*LITIGATION*), and firms to be listed on the New York Stock Exchange or American Stock Exchange (*NYSE/AMEX*).

Our next set of variables follow from the non-GAAP literature. Prior studies use the volatility of a firm's GAAP earnings stream to proxy for low levels of GAAP informativeness. We measure GAAP earnings volatility, however, at the industry level given the short history of financial information typically found in IPO prospectuses. We compute *IND\_EARNVOL* as the mean standard deviation of earnings for public firms in the same industry over the eight fiscal quarters prior to the IPO date. We classify industries based on the Fama-French 48 industry classification scheme. We also include the industry propensity of non-GAAP disclosure by public firms (*IND\_NG*) to proxy for peer disclosure effects. *IND\_NG* is the percentage of public same-industry firms disclosing a non-GAAP earnings metric in SEC-filed earnings announcements in the calendar quarter closest to the IPO's filing date.<sup>18</sup> Lastly, prior research suggest that non-GAAP reporting is partly motivated by the inclusion of adjusted earnings in debt covenant restrictions (Jennings and Marques 2011). We therefore search each prospectus and code *DEBTCOV* as one if the firm discloses the use of adjusted earnings in their debt covenants; zero otherwise.<sup>19</sup>

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<sup>18</sup> These measures are computed using data collected by Bentley et al. 2015. We thank Kurt Gee for sharing this data.

<sup>19</sup> We code *DEBTCOV* for all firms, irrespective of their provision of a non-GAAP earnings metric in the prospectus.

### 3.3 Descriptive Evidence

Panel A of Figure 1 illustrates the frequency of IPOs (bars) and the proportion reporting a non-GAAP earnings number in the final prospectus (solid line) over the 2003-2012 period. Consistent with prior evidence (Loughran and Ritter 2013; Gao, Ritter and Zhu 2015), we find an increase in IPO volume during the post-bubble period of 2003-2007, followed by a sharp decline during the Great Recession (2008-2009) with a steady post-recession rebound (2010-2012).<sup>20</sup> We observe a significant increase in non-GAAP reporting by IPO firms over our sample period—roughly 61% of IPO firms reported a customized earnings metric in 2012 compared to 22% in 2003. Interestingly, we note a sharp increase in non-GAAP reporting during and following the Great Recession. This evidence suggests that nonstandard earnings has become an increasingly common financial metric presented in IPO filings, especially in recent contractionary periods.<sup>21</sup>

Panel B of Figure 1 plots the yearly averages of *FIRSTDAYRET*, *REVISION* and *posREVISION*. The time-series plot of the mean *FIRSTDAYRET* indicates systematic underpricing across our sample period with sizable declines in 2008 and 2010, followed by a noticeable increase from 2011-2012. The mean *REVISION* is negative during much of our sample years, consistent with Willenborg et al. (2015) who report average price revisions of -4.5% over the 2001-2013 period. We also note that the yearly means of *FIRSTDAYRET* move in tandem with mean *REVISION*, and even more so with mean *posREVISION*. This evidence is consistent with the

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<sup>20</sup> The 2012 increase in IPO activity coincides with the April 5, 2012 enactment of the Jumpstart Our Business Startups (JOBS) Act. The JOBS Act reduced the regulatory burdens and risks associated with going public, and is attributed with spurring recent IPO activity among small firms (see Dambra, Field, and Gustafson 2015). Consistent with this evidence, 33% of sample IPOs listed after April 5, 2012 (19 out of 58) elected to file under the provisions of the JOBS Act. Robustness tests confirm that our empirical tests are unaffected by the inclusion of these firms in our sample.

<sup>21</sup> The sharp increase in non-GAAP reporting also coincides with the SEC's January 2010 release of updated interpretative guidance on Regulation G. The guidance update provides more structure on non-GAAP reporting and advises firms that non-GAAP metrics discussed during road shows and earnings calls are material enough to be included in IPO prospectuses and periodic financial reports. Some critics argue that the recent surge in non-GAAP reporting by IPO firms is partly attributable to this regulatory change (Chasan 2012). We control for this potential effect by including year fixed effects in our empirical tests to follow. We also conduct additional analyses to determine whether our results are sensitive to this regime change (see Section 5 for further details).

partial price adjustment phenomenon—IPOs with upward price revisions experience greater underpricing (Benveniste and Spindt 1989; Benveniste and Wilhelm 1990; Hanley 1993).

Table 1 provides descriptive two-way sorts of the proportion of IPOs reporting a non-GAAP earnings metric in the final prospectus. Panel A presents double sorts based on the sign of GAAP earnings and operating cash flows (i.e., positive versus negative *NI* and *OCF*). Panel B presents sorts based on the quartile ranks of GAAP earnings ( $NI\_Q_k$ ) and the sign of operating cash flows. In each panel, we double-sort our sample based on the GAAP performance measure of interest and report the mean value of *NONGAAP* for each sort. The results in Panel A indicate that the mean *NONGAAP* is highest for issuer firms with negative GAAP earnings and positive GAAP cash flows. In addition, issuer firms are least likely to disclose adjusted earnings when GAAP earnings and cash flows are both negative. Tests of these differential means (0.521 versus 0.086,  $t$ -statistic = 8.68) suggest that, in the face of poor earnings, favorable cash flow performance is a strong motivation for non-GAAP disclosure by IPO firms. This evidence also suggests that non-GAAP reporting is more prevalent when positive cash flows provide firms with greater flexibility to recast weak GAAP earnings into stronger “cash-like” measures. The double-sorts do not indicate a differential effect of cash flow performance on non-GAAP disclosure when firms report favorable GAAP earnings—issuer firms with favorable earnings are equally likely to report (better) non-GAAP earnings, irrespective of the direction of operating cash flows.

From Panel B, we first assess how firms’ propensity to disclose non-GAAP earnings metrics vary within each quartile of GAAP operating cash flows (in columns), sorted by quartiles of GAAP net income (in rows). Within each cash flow quartile, we observe an inverted U-shaped pattern in the mean values of *NONGAAP* across the quartile sorts of GAAP earnings. Panel C plots this pattern for each *OCF* quartile. This evidence indicates that IPO firms are less likely to report non-GAAP earnings when they experience extremely good and bad earnings performance. Consistent with our results in Panel A of Table 1, we observe that non-GAAP disclosure is

generally more prevalent when operating cash flows rank in the two highest quartiles (*OCF\_Q3* and *OCF\_Q4*), especially for firms falling in the lowest earnings quartiles (*NI\_Q1* and *NI\_Q2*). In Panel D, we rotate our view and plot the mean *NONGAAP* for each GAAP earnings quartile, sorted by quartiles of GAAP cash flows. For the lowest earnings quartiles (*NI\_Q1* and *NI\_Q2*), we find that non-GAAP reporting increases monotonically with the quartile rank of *OCF*. This result is also consistent with our previously reported evidence—firms with weak GAAP earnings are more likely to report nonstandard earnings when GAAP cash flows are strong.

In sum, the results from Table 1 suggest that the relation between non-GAAP disclosure and GAAP operating performance is not strictly linear, and that this relation varies based on the direction of reported GAAP earnings vis-à-vis operating cash flows. These findings are noteworthy given that prior public-firm research has focused largely on the relation between non-GAAP reporting and the occurrence of negative GAAP earnings performance.

Table 2 presents separate summary statistics for the subsample of IPOs disclosing a non-GAAP earnings metric (*NONGAAP* = 1) and those not providing such a metric (*NONGAAP* = 0). We winsorize all continuous variables at the 1% and 99% levels to reduce the effect of extreme outliers. We set the non-GAAP variables to zero by default for nondisclosing IPOs. We find significant variation in non-GAAP disclosure intensity across the subset of non-GAAP IPOs. Specifically, the mean *NGWORD\_PCT* is 0.059 with a standard deviation of 0.084. We also find that non-GAAP IPOs have better GAAP earnings and cash flow performance relative to IPOs not disclosing non-GAAP earnings metrics. In fact, nondisclosing firms exhibit both negative earnings and negative cash flows on average, indicating that these firms have little ability to recast earnings into a more favorable metric. We note that GAAP cash flows are significantly higher than GAAP earnings for non-GAAP firms (0.113 versus 0.026, *t*-test *p*-value = 0.00), consistent with the evidence reported in Table 1. For non-GAAP IPOs, the mean *NI\_NG* is 0.179 compared to mean

*NI* of 0.026, indicating that these firms generally exclude income-decreasing items when arriving at customized earnings measures.<sup>22</sup>

The mean *EXCL<sub>TOTAL</sub>* is 0.153, indicating that firms exclude about 15 cents of expenses for every \$1 of average assets. Of this amount, roughly 8.6 cents pertain to exclusions of recurring expenses (mean *EXCL<sub>RECUR</sub>* of 0.086). We note that non-GAAP IPOs are more likely to discuss the use of adjusted earnings in their debt contracts (*DEBTCOV*) and have a greater proportion of insiders selling shares in the offering (*INSIDER\_SELL*). In addition, non-GAAP firms have slightly more volatile GAAP industry earnings (*IND\_EARNVOL*), suggesting a possible role of informational factors in firms' non-GAAP disclosure decisions. We find that non-GAAP firms have lower ownership retention (*SHARE\_RETAIN*) and stand to raise significantly more cash from the offering (*PROCEEDS*). Lastly, non-GAAP disclosure by public peer firms (*IND\_NG*) is more prevalent for non-GAAP IPOs. The remainder of our variables suggest other significant differences between the two subsamples, though we do not discuss them for brevity.

## IV. EMPIRICAL RESULTS

### 4.1 The Components of Non-GAAP Exclusions in IPO Prospectuses

Since our study is the first to examine non-GAAP reporting in IPOs, we begin our primary analyses by evaluating the common types of earnings items excluded by IPO firms when arriving at the non-GAAP earnings figure. We also assess the economic significance of each type of exclusion based on its statistical correlation with the magnitude of firms' total earnings exclusions.

Table 3 presents descriptive evidence on the percentage of IPO prospectuses that contain an exclusion based on the 17 categories identified in our manual coding process. Panel A presents summary statistics for each exclusion category, while Panel B plots the percentages. Panel A also

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<sup>22</sup> A further inspection of our sample reveals that only 4% of non-GAAP IPOs disclose a non-GAAP earnings metric that is lower than the GAAP figure.

presents aggregate statistics based on the (non)recurring nature of the exclusion categories. We find that the majority of non-GAAP IPOs exclude at least one recurring item (99.21%), with depreciation and amortization (96.03%), interest (92.46%), and tax expense (86.90%) being the most common recurring adjustments. This evidence is consistent with recent surveys indicating that many non-GAAP IPOs report some form of an “Adjusted EBITDA” metric (PwC 2014).<sup>23</sup> We also find that about 61% of non-GAAP IPOs exclude stock-based compensation costs, while roughly 6% adjust for revenue-related items such as add-ins of deferred or unearned revenues. It is well-documented in prior literature that recurring exclusions are especially indicative of aggressive non-GAAP reporting, with many of these items correlated with negative future performance (see e.g., Black and Christensen 2009; Frankel et al. 2011; Brown et al. 2012). Thus, the extensive use of recurring adjustments in IPO prospectuses could be more in line with opportunistic motives to window-dress the firm’s earnings performance.<sup>24</sup>

When we focus on the nonrecurring nature of the exclusions, we find that 69% of non-GAAP IPOs exclude at least one special item, while about 12% exclude below-the-line items. Common nonrecurring adjustments include fair value losses (29%), merger/acquisition-related costs (24%), asset impairment charges (17%), and gain/losses on asset sales (17%). Lastly, we note that over half of non-GAAP filings (56%) contain at least one adjustment that falls outside of common classifications, consistent with business press anecdotes. These adjustments typically consist of line items such as litigation and pension costs, management fees, and accretion costs.

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<sup>23</sup> Our sample firms use various nomenclatures to describe their non-GAAP earnings metric including “adjusted EBITDA”, “EBITDAX”, “Corporate EBITDA,” “EBITDA from continuing operations”, and “operating income before [certain items].” We also find several cases where IPO firms use the term “EBITDA” even though the non-GAAP metric excludes line items beyond interest, tax, and depreciation and amortization expenses.

<sup>24</sup> Recent evidence from Whipple (2015) suggests that some recurring item exclusions reflect informational motives. However, the earnings data used in Whipple (2015) focus on street earnings exclusions by sell-side analysts as opposed to manager-defined exclusions, which is the focus of our paper. We note further that sell-side analyst coverage is absent in our private-firm IPO setting, thus analysts’ informational motives is unlikely to influence managers’ exclusion decisions as documented in public-firm non-GAAP research (see Bentley et al. 2015). We therefore contend that there is more scope for opportunism in manager-defined adjusted earnings in the IPO setting.



Following prior studies (e.g., Black and Christensen 2009; Brown and Christensen 2014), we assess the economic significance of the various types of exclusions by first regressing total earnings exclusions ( $EXCL_{TOTAL}$ ) on indicator variables for the (non)recurring nature of the adjustments as follows:

$$EXCL_{TOTAL} = \beta_0 + \beta_1 RECUR + \beta_2 NONRECUR + \beta_3 OTHER + \beta_4 TREND + \varepsilon \quad (1a)$$

$$EXCL_{TOTAL} = \beta_0 + \beta_1 RECUR + \beta_2 SPECIAL + \beta_3 BELOWLINE + \beta_4 OTHER + \beta_4 TREND + \varepsilon \quad (1b)$$

Equation 1a estimates the economic significance of recurring ( $RECUR$ ) and nonrecurring ( $NONRECUR$ ) adjustments, while equation 1b decomposes nonrecurring items into separate categories of special items ( $SPECIAL$ ) and below-the-line adjustments ( $BELOWLINE$ ). We also control for time trend effects ( $TREND$ ) and earnings exclusions classified in the  $OTHER$  category. The estimated coefficients on the exclusion categories inform us of the average magnitude of firms' recurring and nonrecurring exclusions, while the statistical significance indicates the importance of each category in determining the adjustments made by IPO firms.

Table 4 presents the regression results for equations 1a and 1b (see models 1 and 2) based on the subsample of non-GAAP IPOs. We present  $t$ -statistics based on robust standard errors corrected for heteroskedasticity and clustering by Fama-French industry. In model 1, the coefficients on  $RECUR$  and  $OTHER$  are statistically significant, while the coefficient on  $NONRECUR$  is insignificant. These results suggest that the exclusions contained in IPO filings consist primarily of recurring line items and other uncommon adjustments. The magnitude of the coefficients indicate that on average recurring exclusions account for roughly 15 cents per dollar of average assets, while uncommon adjustments account for about 3 cents. These results are economically significant when we consider that the mean  $EXCL_{TOTAL}$  is 15 cents in our non-GAAP subsample. The results in model 2 indicate that, while special item exclusions are fairly common, the aggregate magnitude is rather trivial. Interestingly, we find a significantly negative coefficient

on *BELOWLINE* indicating that some IPO firms exclude one-time below-the-line gains when arriving at the adjusted earnings metric. Consistent with prior research (Curtis et al. 2014), this evidence suggests that the adjustment decisions of some firms reflect informational motives.

We further gauge the economic significance of the individual types of earnings exclusions using the following regressions:

$$EXCL_{RECUR} = \beta_0 + \sum_{j=1}^6 \beta_j (Recurring\_Adj) + \beta_7 OTHER + \beta_8 TREND + \varepsilon \quad (2a)$$

$$EXCL_{TOTAL} = \beta_0 + \sum_{q=1}^{16} \beta_q (Total\_Adj) + \beta_{17} OTHER + \beta_{18} TREND + \varepsilon \quad (2b)$$

Equation 2a estimates the economic significance of the various types of recurring adjustments (*Recurring\_Adj*), while Equation 2b estimates the significance of all 16 categories of recurring and nonrecurring exclusions (*Total\_Adj*). Models 3 and 4 of Table 4 present the estimated results for equations 2a and 2b, respectively. Of the various categories of recurring adjustments, we find that *REVENUES*, *STOCKCOMP*, *DEPRAMORT*, and *INTEREST* play a significant role in determining the average magnitude of firms' total recurring exclusions (*EXCL<sub>RECUR</sub>*). The estimated coefficient on *OTHER* (0.0193, *t*-statistic = 2.51) suggests that a significant proportion of uncommon adjustments pertain to recurring expenses. The results in model 4 indicate significantly negative coefficients on *MERGER*, *DISCOP*, and *CHGACCPIN*, corroborating the evidence in model 2 that some IPO firms exclude nonrecurring gains when computing customized earnings metrics.

Taken together, our evidence indicates that earnings exclusions made by non-GAAP IPOs are economically significant and consist largely of recurring expenses. The results also corroborate observations in the business press that many IPO firms exclude earnings items that do not fit readily into common classifications.

#### **4.2 Determinants of Non-GAAP Disclosure by IPO Firms**

We next investigate the factors that influence (1) the disclosure of non-GAAP earnings measures in IPO filings and (2) the extent to which these measures are emphasized within the

prospectus. Our first empirical specification is a logit regression of the propensity to disclose an adjusted earnings measure as follows:

$$Pr(NG = 1) = \Lambda \left( \begin{array}{l} \sum_{t=1}^3 \beta_t (GAAP \text{ Performance}) + \beta_4 DEBTCOV + \\ \beta_5 IND\_NG + \beta_6 IND\_EARNVOL + \beta_7 SHARE\_RETAIN + \\ \beta_8 INSIDER\_SELL + \beta_9 LITIGATE + \beta_{10} TOPUW + \\ \beta_{11} TOPAUDIT + \beta_{12} VENTURE + \beta_{13} SPINOFF + \\ \beta_{14} LTDPARTNER + \beta_{15} \ln(ASSETS) + \\ \beta_{16} \ln(1 + AGE) + \beta_{17} HITECH + \beta_{18} TREND + \varepsilon \end{array} \right) \quad (3a)$$

where *GAAP Performance* is a vector of variables capturing pre-IPO GAAP earnings and cash flow performance; all other variables are as previously defined. Our next specification is an OLS regression of non-GAAP disclosure intensity (*NGWORD\_PCT*) on pre-IPO GAAP performance measures and other covariates as follows:

$$NGWORD\_PCT = \sum_{t=1}^3 \beta_t (GAAP \text{ Performance}) + \beta_4 DEBTCOV + \beta_5 IND\_NG + \beta_6 IND\_EARNVOL + \beta_7 SHARE\_RETAIN + \beta_8 INSIDER\_SELL + \beta_9 LITIGATE + \beta_{10} TOPUW + \beta_{11} TOPAUDIT + \beta_{12} VENTURE + \beta_{13} SPINOFF + \beta_{14} LTDPARTNER + \beta_{15} \ln(ASSETS) + \beta_{16} \ln(1 + AGE) + \beta_{17} HITECH + \beta_{18} TREND + \varepsilon \quad (3b)$$

Table 5 presents the estimated logit results for equation 3a. In Model 1, the *GAAP Performance* vector consists of the indicator variables: *posNI\_negOCF*, *negNI\_posOCF*, and *negNI\_negOCF* (the intercept captures *posNI\_posOCF*). This specification mirrors the two-way GAAP earnings and cash flow sorts presented in Panel A of Table 1. Models 2 and 3 include the signed and absolute variables of GAAP earnings (*NI* and *abs(NI)*) and cash flows (*OCF* and *abs(OCF)*), respectively. Models 4 and 5 include separate indicator variables for the quartile ranks of GAAP earnings (*NI\_Q2* through *NI\_Q4*) and operating cash flows (*OCF\_Q2* through *OCF\_Q4*), respectively. These indicator variables estimate the incremental disclosure propensity for IPOs in higher quartile ranks of earnings (or alternatively, cash flows) relative to the disclosure propensity for IPOs in the lowest quartile rank of earnings (cash flows). The estimated coefficients for the lowest ranks (*NI\_Q1* and *OCF\_Q1*) are absorbed by the intercept. For each model, we

report  $z$ -statistics (in parentheses) based on robust standard errors corrected for heteroskedasticity and clustering by Fama-French industry. We also include year fixed effects to control for unobserved time factors. To gauge the economic significance of our results, we present the average marginal effects and the corresponding  $z$ -statistics for each model.<sup>25</sup>

The results from model 1 are consistent with the inferences from our double sorts in Panel A of Table 1. Specifically, we find that IPO firms are more likely to disclose adjusted earnings metrics when they report negative GAAP earnings, but positive GAAP operating cash flows (*negNI\_posOCF*). The average marginal effect for *negNI\_posOCF* is 0.0536 ( $z$ -statistic = 1.71), indicating that firms with negative GAAP earnings and positive GAAP cash flows are 5.36% more likely to report an adjusted earnings metric in the final prospectus. This result is economically significant given that the predicted baseline probability of non-GAAP disclosure is 27% for our sample (i.e., with all covariates set to the mean). The estimated coefficient on *negNI\_negOCF* (-1.4672,  $z$ -statistic = -4.03) indicates that the propensity to disclose non-GAAP earnings declines significantly (average marginal effect of -18.26%) when GAAP earnings and cash flows are both negative. As noted earlier, this evidence is consistent with firms possessing little room to use non-GAAP exclusions to arrive at a positive near-cash measure of operating performance.

In Model 2, we observe an inverted U-shaped pattern in the effect of GAAP earnings performance on the probability of disclosing a non-GAAP figure. The estimated coefficient on *NI* is positive and significant (0.9015,  $z$ -statistic = 2.08), while the estimated coefficient on *abs(NI)* is significantly negative (-3.7377,  $z$ -statistic = -4.15). This evidence confirms that the likelihood of disclosing an adjusted earnings metric is significantly lower when firms experience large positive or large negative GAAP earnings. This inverted U-shaped pattern is further evident in the results

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<sup>25</sup> The marginal effects and standard errors are calculated for each sample observation and then averaged across all the observations (Greene 2003; Bartus 2005). The marginal effects for binary (continuous) variables are calculated as discrete changes (partial derivatives) of the non-GAAP disclosure probability.

from model 4 which depicts relatively lower disclosure propensities for IPOs ranking in the second and fourth earnings quartiles, compared to IPOs ranking in the third quartile. Untabulated *F*-tests of differences in the estimated coefficients are statistically significant at the 5% level and lower. The coefficients from models 3 and 5 suggest a monotonically increasing relation between GAAP cash flows and the probability of disclosing non-GAAP earnings. In model 5, the incremental disclosure propensity is consistently higher as we move from the second through to the fourth cash flow quartile (i.e., *OCF\_Q2* = 1.0745 versus *OCF\_Q4* = 1.6219, *F*-test *p*-value = 0.078).

With respect to our other covariates, the results across all models indicate that firms are more likely to report nonstandard earnings metrics when they disclose the use of alternative earnings numbers in their debt covenant restrictions (*DEBTCOV*). The non-GAAP disclosure propensity also increases with the industry rate of non-GAAP usage (*IND\_NG*), though this effect is economically weak (average marginal effect of 0.56% in model 1). We find that IPOs facing high litigation risks (*LITIGATE*) are less likely to engage in non-GAAP reporting. In addition, IPOs backed by venture capital are roughly 10% more likely to provide customized earnings measures in the final prospectus (the average marginal effects of *VENTURE* range from 9.15% to 10.74%). Prior studies find that firms taken public by venture capitalists are generally younger, more risky, and less profitable (Lee and Wahal 2004). Thus, the positive effect of venture funding on non-GAAP disclosure could reflect incentives to inform or inflate investors' perceptions. This positive relation could also reflect the grandstanding hypothesis proposed by Gompers (1996), wherein venture capitalists have incentives to manage investors' perceptions of IPO value as a means of increasing their future fundraising ability. Finally, consistent with Figure 1, we find positive time trends (*TREND*) in non-GAAP disclosure propensity across our sample.

Table 6 presents the OLS regression results for our measure of non-GAAP disclosure intensity (*NGWORD\_PCT*). The estimated coefficients for our GAAP earnings and cash flow variables provide inferences that are generally consistent with our results in Table 5. We find that

IPOs with negative GAAP earnings and positive GAAP cash flows tend to place more emphasis on non-GAAP earnings in the final prospectus. We also continue to find an inverted U-shaped relation between GAAP earnings performance and the attention devoted to non-GAAP earnings metrics in the prospectus. Our GAAP cash flow variables continue to suggest an increasing relation between GAAP cash flow performance and non-GAAP emphasis. We do not tabulate the estimated coefficients for the other determinants for the sake of brevity. Nonetheless, we find a negative relation between *TOPTIER* and *NGWORD\_PCT*, suggesting that firms with more reputable underwriters place less emphasis on non-GAAP earnings in IPO filings. We also find a positive influence of *IND\_NG* on firms' non-GAAP disclosure intensity.

### **4.3 Non-GAAP Earnings Disclosure and IPO Pricing**

Prior literature has put forth several theories of IPO price formation. A number of theories are based on asymmetric information uncertainty between issuers and potential investors regarding the IPO's value and demand for the shares (Beatty and Ritter 1986; Rock 1986; Welch 1992). These theories also emphasize the common practice of book building, wherein underwriters underprice the offering to induce investors to truthfully reveal private information about IPO value and share demand (Benveniste and Spindt 1989; Benveniste and Wilhelm 1990). More recent studies explore the pricing implications of agency-based conflicts of interest between underwriters and issuers (Loughran and Ritter 2002). In the agency setting, underwritings intentionally underprice shares to curry favor with preferential buy-side clients. Issuer firms that stand to experience high post-IPO valuations are more tolerant of such low-balling, whereas those with potentially lower post-IPO valuations bargain more aggressively with underwriters for a higher offer price. In our empirical tests to follow, we use a multi-pronged approach to first establish whether non-GAAP reporting is significantly associated with asymmetric uncertainty. We then examine pre-IPO price revisions during book building to help us discriminate between alternative explanations related to information revelation and agency conflicts.

*4.3.1 IPO First Day Return and Post-IPO Return Volatility* We first investigate the association between non-GAAP disclosure and the IPO's initial return (or underpricing) and subsequent stock return volatility, while controlling for GAAP earnings performance and self-selection biases. The initial return and post-IPO return volatility serve as proxies for asymmetric uncertainty surrounding the IPO's value and share demand. Thus, evidence of a positive association between these measures and non-GAAP earnings information would indicate that such information is correlated with asymmetric uncertainty, and vice versa if the association is negative. Evidence of a positive (negative) association would also offer insights on the informational quality of non-GAAP earnings disclosures, or the lack thereof.

We employ the following regression models to address this empirical issue:

$$(FIRSTDAYRET, RETVOL) = \beta_0 + \beta_1 NI + \beta_2 NONGAAP + \sum_{t=3}^{17} \beta_t (Controls) + \varepsilon \quad (4a)$$

$$(FIRSTDAYRET, RETVOL) = \beta_0 + \beta_1 NI + \beta_2 Exclusions + \sum_{t=3}^{17} \beta_t (Controls) + \varepsilon \quad (4b)$$

where *Exclusions* is a vector of the components of firms' earnings exclusions and *Controls* is a vector of control variables. The specification in equation 4a estimates the association between IPO uncertainty and firms' use of non-GAAP metrics (*NONGAAP*), while equation 4b estimates the association between IPO uncertainty and firms' total earnings exclusions as well as the recurring and nonrecurring components of these exclusions. We control for several correlated factors of IPO underpricing and post-issue return volatility as documented in prior literature. We also control for self-selection biases by including separate inverse mills ratios for firms' decision to disclose (*NONGAAP* = 1) or not disclose (*NONGAAP* = 0) nonstandard earnings metrics (Heckman 1979; Tucker 2007). We compute the inverse mills ratios by estimating a probit regression of *NONGAAP* on GAAP earnings performance (*NI*) and other covariates as specified in equation 3a.<sup>26</sup>

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<sup>26</sup> We find similar evidence if we include GAAP cash flows (*OCF*) as a separate performance measure in the probit regression. Our evidence is also unchanged if we include the absolute values of *NI* and *OCF* as additional covariates.

The regression results for equations 4a and 4b are presented in Table 7. We include fixed time effects in each regression and present robust standard errors clustered by Fama-French industry. Models 1 and 5 present baseline regressions of GAAP earnings performance ( $NI$ ) on IPO first day returns and subsequent return volatility, respectively. The estimated coefficients on  $NI$  indicates that firms with more favorable GAAP earnings have greater underpricing, but lower post-IPO return volatility. Consistent with prior research (Loughran and McDonald 2013; Willenborg et al. 2015), this differential result suggests that the relation between GAAP earnings performance and IPO valuation likely reflects underwriters' pricing discretion as opposed to standard explanations of asymmetric uncertainty. We explore this issue further in the next section.

Turning to our non-GAAP variables, the results in models 2 and 6 do not indicate significant differences in the first day returns and post-issue return volatility for firms disclosing non-GAAP earnings. Nonetheless, we find that IPO underpricing increases with the magnitude of firms' earnings exclusions (model 3), and especially the level of recurring exclusions (model 4). In model 4, the coefficient on  $EXCL_{RECUR}$  indicates underpricing of about 1.40% for every 10% increase in recurring exclusions per dollar of average assets. We also find greater post-IPO return volatility in model 8 when firms exclude larger amounts of recurring expenses. These results suggest that nonstandard earnings adjustments amplify (rather than diminish) asymmetric information uncertainty, consistent with arguments of window-dressing or potential opportunism.

Our control variables indicate that first-day returns are more pronounced for IPOs with greater ownership retention ( $SHARE\_RETAIN$ ). This result is consistent with arguments of (1) greater investor demand when offering shares are scarce (Ritter 2002), (2) more money being "left on the table" (i.e., more underpricing) when pre-IPO shareholders retain a significant portion of the firm (Loughran and Ritter 2002), and (3) higher investor uncertainty about potentially large increases in share supply when pre-IPO shareholders are allowed to sell shares upon lockup expiration (Bradley and Jordan 2002). We also find a positive (negative) effect of



*SHARE\_RETAIN* (*INSIDER\_SELL*) on *RETVOL*, which likely reflects greater (lower) uncertainty prior to lockup expirations when pre-IPO shareholder retain (sell) more shares in the offering.

The negative (positive) coefficient on *MKTRET* (*posMKTRET*) in the *RETVOL* regressions indicates an asymmetric effect of pre-issue public information on ex-post uncertainty. Post-IPO return volatility is much higher in absolute terms when bad systematic news is learned during book building (*MKTRET* = -0.1074 in model 1), compared to when positive news is revealed (*MKTRET* + *posMKTRET* = 0.0598, *F*-test *p*-value = 0.00). In line with Loughran and McDonald (2013), we find significantly higher return volatility when filings contain more uncertain language (*TONE*). Consistent with prior work, asymmetric uncertainty is higher for high technology firms (*HITECH*) and equity carveouts (*SPINOFF*), and lower for larger firms (*ASSETS*), firms structured as limited partnerships (*LTDPARTNER*), and those with high-quality auditors (*TOPAUDIT*).

Lastly, the positive coefficient on *REVISION* in models 1 through 4 indicates that IPO underpricing is more (less) severe when underwriters revise the offer price upwards (downwards) after book building. This relation is also asymmetric as documented in prior studies (e.g., Hanley 1993; Ljungqvist and Wilhelm 2003). IPOs with positive price revisions exhibit initial returns that are five times greater in absolute terms compared to IPOs with negative price revisions (*REVISION* + *posREVISION* = 1.3513 versus *REVISION* = 0.2490 in model 4). This evidence is consistent with the information revelation hypothesis (Benveniste and Spindt 1989; Benveniste and Wilhelm 1990), wherein underwriters only partially adjust the offer price to reward better-informed investors for revealing their private demand for the offering. We find similar asymmetries in the effect of price revisions on return volatility—IPOs with positive price adjustments exhibit asymmetric uncertainty of a greater magnitude compared to IPOs with negative adjustments.

**4.3.2 IPO Price Revisions** The evidence in Table 7 suggests that asymmetric uncertainty is higher for IPOs providing non-GAAP earnings information, especially those excluding larger amounts of recurring expenses. Our next set of empirical tests examines the association between

non-GAAP disclosure and pre-issue revisions in the offer price to shed light on the mechanisms underlying the pricing effects of non-GAAP earnings disclosure.

In Table 8, we re-estimate equations 4a and 4b after substituting *REVISION* and *posREVISION* as the dependent variables (and removing them as control variables). We do not tabulate the control variables for the sake of brevity. We again present baseline regression results of *NI* on the price revision variables (see models 1 and 5). We find a significantly positive effect of *NI* on *REVISION* and *posREVISION*. These results are in line with the agency conflict hypothesis of underpricing (Loughran and Ritter 2002)—strong performing firms are more likely to acquiesce to underwriters' lowballing of the initial offer price, thereby leading to positive price revisions and initial returns as observed in Table 7.

Interestingly, we find significantly negative coefficients on *NONGAAP* in both the *REVISION* and *posREVISION* regressions. This evidence suggests that non-GAAP IPOs, on average, suffer significant declines in the offer price (or positive revisions are reduced) following book building. In model 3, we also find a negative association between *REVISION* and *EXCLTOTAL*, suggesting that offer price declines are more severe when firms make greater amounts of income-increasing earnings exclusions. We note that the coefficient on *EXCLTOTAL* is insignificant in model 7, suggesting that the negative association between *REVISION* and *EXCLTOTAL* primarily reflects downward price adjustments. Untabulated results are consistent with this inference as the coefficient on *EXCLTOTAL* becomes significantly negative (-0.0504, *t*-statistic = -1.79) when we re-estimate model 7 using negative price revisions (*negREVISION*) as the dependent variable.

These combined results indicate that non-GAAP earnings information have negative pricing implications and that the adjustments made by firms are not value-irrelevant as corporate executives often claim. Moreover, these results suggest that underwriters underweight the negative pricing implications of non-GAAP information at the time of setting the initial price range, appearing to overvalue the IPO at the outset. This underweighting could reflect both the

information revelation and agency conflict hypotheses of IPO pricing. In the context of the information revelation model, the results suggest that firms disclosing non-GAAP information are overpriced at the outset with underwriters revising the initial offer price downwards as new (negative) information is revealed by informed investors about share demand. The results also suggest that non-GAAP issuers are able to negotiate with underwriters for higher initial valuations that are corrected downwards following book building. This interpretation is consistent with the Loughran-Ritter agency model and the evidence of Willenborg et al. (2015)—issuers with low-quality information tend to bargain hard with underwriters over the initial offer price.

We also note that the evidence in Table 7 indicates that non-GAAP IPOs continue to exhibit underpricing, despite negative price revisions following book building. This evidence further points to private information extraction as partially explaining IPO price formation in the non-GAAP setting. That is, one could infer that underwriters continue to underprice non-GAAP offers to compensate investors for revealing private information or to ensure that the offering remains attractive to investors (Lowry and Schwert 2004).

Lastly, the results in Tables 7 and 8 indicate that the influence of non-GAAP earnings information on IPO pricing varies based on the (non)recurring nature of the excluded items. Specifically, first-day returns and post-IPO volatility increases with the magnitude of recurring exclusions, whereas offer price revisions are negatively associated with the magnitude of nonrecurring exclusions (see models 4 and 8 of Tables 7 and 8). There is also no discernible effect of recurring exclusions on offer price revisions. These combined results could suggest the following: (1) the price adjustment to the information embedded in firms' nonrecurring exclusions is complete with little effect on first-day price changes, (2) underwriters are more likely to compensate investors with underpriced shares when issuers exclude recurring items, and (3) it is difficult for issuers to bargain with underwriters for higher initial valuations when they exclude

recurring items (given that we find no price revision effect for these exclusions). We offer additional insights on these possible explanations in the next section.<sup>27</sup>

## V. EXTENSIONS AND ROBUSTNESS TESTS

### 5.1. Extended Analyses

We further disentangle the role of asymmetric information and agency conflicts by investigating whether the relation between IPO pricing and non-GAAP earnings information varies with proxies capturing the firm's bargaining power with underwriters. As Loughran and McDonald (2013) argue, firms hold weaker bargaining positions when the IPO prospectus contains more uncertain or negative language. Loughran and McDonald also contend that firms cannot easily conceal weak positions when they face intense SEC scrutiny. Given these arguments, we capture weak bargaining positions based on the language tone of the prospectus and the receipt of SEC staff comment letters that reference the disclosure of non-GAAP earnings measures.

We identify firms receiving non-GAAP comments by programmatically searching SEC comment letters for references to non-GAAP earnings information using the keywords outlined in section 3.2.1. We narrow this search to only those IPOs receiving comment letters on the disclosure content of their prospectuses, i.e., 532 firms (76%) out of our full sample of 696. We then code *NG\_SECLTR* as one for non-GAAP IPOs if our keyword search identifies one or more references to non-GAAP reporting in one or more comment letters issued to the firm; and zero otherwise. As previously defined, our language tone measure (*TONE*) is the first principal component of the Loughran and McDonald (2011) word lists for uncertain, negative, and weak modal language. For

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<sup>27</sup> Our control variables are consistent with prior literature. For instance, we find that price revisions increase with ownership retention (*SHARE\_RETAIN*) and public news (*MKTRET*), consistent with these factors signaling positive information about IPO value during book building. IPOs with top-tier underwriters (*TOPUW*) experience greater price revisions after book building, consistent with the argument that underwriters with greater informational advantages are more likely to low-ball the initial price range (Lowry and Schwert 2004; Loughran and McDonald 2013).

ease of interpretation, we use a rank transformation of language tone (*TONERANK*) computed as the quartile rank of *TONE* minus one, divided by three.

Our first set of tests re-estimates the regressions in Tables 7 and 8 after interacting *NONGAAP* and the *Exclusions* vector with *TONERANK*. Table 9 reports the re-estimated results along with *F*-tests of the combined main and interaction effects of each variable. The main coefficients on *NONGAAP* and the *Exclusions* variables represent the pricing effect of non-GAAP information for IPO filings with the lowest proportion of uncertain text (*TONERANK* = 0). The first-day return results do not suggest a significant association between non-GAAP information and IPO underpricing when the prospectus contains less uncertain language (*NONGAAP* = -0.0202, *t*-statistic = -1.03). We also find that non-GAAP filings with less uncertain text experience negative (or smaller) price revisions, with more pronounced declines when they make larger earnings adjustments (see the *NONGAAP* and *Exclusion* coefficients in the price revision regressions). Consistent with the agency conflict model, this evidence suggests that non-GAAP IPOs with less uncertain prospectuses, and presumably stronger bargaining positions, tend to receive higher initial valuations, with almost full downward adjustments following book building. We interpret the adjustments as full given that we find no significant underpricing for these firms.

With respect to our interaction effects, we find that non-GAAP IPOs experience greater underpricing ( $TONERANK \times NONGAAP = 0.0710$ , *t*-statistic = 2.57) when the prospectus contains more uncertain language. We also find that the magnitude of earnings exclusions (especially recurring items) are associated with greater underpricing for more uncertain filings. The price revision tests further indicate that the level of firms' earnings exclusions (both recurring and nonrecurring) is positively associated with (upward) price revisions when filings contain higher proportions of uncertain text. The results are also consistent with the agency conflict hypothesis—underwriters tend to low-ball the initial offer price when non-GAAP filings contain large earnings

exclusions coupled with high proportions of obscure text. Moreover, underwriters only partially adjust the offer price after book-building leading to greater underpricing for this subset of firms.

Table 10 present results for the interaction effects of non-GAAP scrutiny (*NG\_SECLTR*). We do not present results for the interaction of *NG\_SECLTR* with *NONGAAP* since these variables are highly collinear.<sup>28</sup> The estimated effects are weaker than those reported in Table 9, but continue to portray a similar story. Specifically, we find that recurring exclusions are associated with greater underpricing when firms face SEC scrutiny of their non-GAAP disclosures. We also find strong evidence that firms facing SEC scrutiny exhibit significantly positive associations between the level of recurring exclusions and upward price revisions. These results corroborate our inference that the influence of non-GAAP earnings disclosure on IPO pricing partly reflects agency conflicts between underwriters and issuer firms.

## 5.2 Robustness Tests

We conduct several sensitivity analyses and find that all of our inferences hold. First, our IPO pricing results are identical when we control for coordination of the book building process as proxied by the number of book runners in the underwriting syndicate. Our results also hold when we include GAAP cash flows (*OCF*) as an additional covariate in our tests of IPO price formation.

Second, our sample period overlaps the SEC's issuance of interpretative guidance (January 2010) that relaxes some regulatory objections to how firms use non-GAAP earnings metrics. The business press argues that recent surges in the aggressive use of non-GAAP reporting is partly attributable to easing of the SEC's guidelines (Chasan 2012). To account for this regime change, we assess the differential pricing effects of non-GAAP disclosures by IPOs filed after January 2010. Untabulated results indicate that the positive association between IPO underpricing and (recurring) earnings exclusions is stronger following the SEC's issuance of revised guidance. We

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<sup>28</sup> Recall that *NG\_SECLTR* is coded only for non-GAAP IPOs (i.e., *NONGAAP* = 1).

also find that non-GAAP IPOs experience more negative price revisions in the post-guidance period. This evidence is consistent with assertions in the business press that non-GAAP disclosures are more opaque in the post-guidance period, thereby leading to greater asymmetric uncertainty and underweighting of non-GAAP earnings information.

Finally, our price revision tests indicate that the initial price range for non-GAAP issuers is set too high, especially for issuers with strong bargaining positions. We test the validity of these inferences by examining the relation between non-GAAP disclosure and initial valuation computed as the midpoint of the initial price range times the number of post-IPO shares outstanding. We scale the initial value by total assets as of the beginning of the fiscal period prior to the IPO date. Our results indicate (not reported) that IPO firms have higher initial valuations when they disclose non-GAAP earnings. IPO firms disclosing non-GAAP earnings also have higher initial valuations when their prospectuses contain lower proportions of uncertain text, consistent with greater bargaining power with underwriters during initial price setting.

## **VI. CONCLUSION**

Firms are increasingly choosing to disclose non-GAAP earnings figures in the IPO prospectus, and the underlying motivation and pricing effects of this disclosure practice is heavily debated. We shed light on this issue by investigating the determinants and pricing effects of non-GAAP earnings figures disclosed by IPO firms. We hand-collect GAAP and non-GAAP earnings figures (and the accompanying non-GAAP exclusions) for a sample of 696 book-built IPOs completed between 2003 and 2012. The data indicate that 36% of our sample firms disclose an adjusted earnings metric in the final prospectus. While these firms often adjust earnings for special item and below-the-line charges, they make economically significant recurring adjustments such as add-ins of deferred or unearned revenues and add-backs of stock-based compensation, depreciation and amortization costs, and interest-related charges.

Our logit analyses indicate that the disclosure and emphasis placed on non-GAAP earnings metrics is differentially related to firms' GAAP operating performance. We also find that peer-firm effects, litigation risks, and the presence of venture backing play a significant role in non-GAAP reporting. Our pricing tests indicate that IPO underpricing and post-issue return volatility increases with non-GAAP earnings information, consistent with these measures amplifying asymmetric uncertainty in IPO price formation. We also find that non-GAAP IPOs suffer negative offer price declines after book building, especially when IPO filings contain large amounts of earnings exclusions. Additional analyses suggest that the effect of non-GAAP information on IPO pricing is partly attributable to agency conflicts between underwriters and issuers.

This study provides the first evidence of non-GAAP reporting in the IPO setting. Our evidence also extends the IPO literature by documenting the role of nonstandard earnings information in the pricing of initial public offerings. This research has practical implications for regulators and standard setters who continue to express concern about the potential for non-GAAP information to inflate perceptions of IPO value.



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## APPENDIX 1 Variable Definitions

<b><i>Non-GAAP Disclosure and Emphasis</i></b>	
<i>NG</i>	Equals “1” if the firm reports a non-GAAP earnings metric within the final IPO prospectus (Form 424 or any variant); “0” otherwise.
<i>NGWORD_PCT</i>	The number of non-GAAP key words for every 1,000 words of the Loughran and McDonald (2011) master dictionary that appear in the final prospectus.
<b><i>Pre-IPO Non-GAAP and GAAP Accounting Measures</i></b>	
<i>NI_NG</i>	Pre-IPO annualized non-GAAP net income as reported in the final IPO prospectus, scaled by average total assets.
<i>NI</i>	Pre-IPO annualized GAAP net income as reported in the final IPO prospectus, scaled by average total assets.
<i>OCF</i>	Pre-IPO annualized cash flows from operations as reported in the final IPO prospectus, scaled by average total assets.
<i>abs(NI)</i>	The absolute value of <i>NI</i> .
<i>abs(OCF)</i>	The absolute value of <i>OCF</i> .
<i>posNI_posOCF</i>	Equals “1” if <i>NI</i> is positive and <i>OCF</i> is positive; “0” otherwise.
<i>posNI_negOCF</i>	Equals “1” if <i>NI</i> is positive and <i>OCF</i> is negative; “0” otherwise.
<i>negNI_posOCF</i>	Equals “1” if <i>NI</i> is negative and <i>OCF</i> is positive; “0” otherwise.
<i>negNI_negOCF</i>	Equals “1” if <i>NI</i> is negative and <i>OCF</i> is negative; “0” otherwise.
<i>NI_Q<sub>k</sub></i>	Equals “1” for each quartile rank <i>k</i> of <i>NI</i> ; “0” otherwise.
<i>OCF_Q<sub>k</sub></i>	Equals “1” for each quartile rank <i>k</i> of <i>OCF</i> ; “0” otherwise.
<b><i>Non-GAAP Earnings Exclusions</i></b>	
<i>EXCL<sub>TOTAL</sub></i>	Total earnings exclusions, calculated as the pre-IPO annualized non-GAAP net income minus the pre-IPO annualized GAAP net income. We scale <i>EXCL<sub>TOTAL</sub></i> by average total assets.
<i>EXCL<sub>RECUR</sub></i>	Total recurring exclusions, computed as total earnings exclusions minus the amount of total nonrecurring exclusions.
<i>EXCL<sub>NONRECUR</sub></i>	Total nonrecurring exclusions, calculated as the pre-IPO annualized GAAP net income minus the pre-IPO annualized GAAP operating income. We set <i>EXCL<sub>NONRECUR</sub></i> to zero if <i>EXCL<sub>TOTAL</sub></i> equals zero.
<i>Exclusions</i>	A vector of indicator variables identifying the exclusion of 17 categories of recurring and nonrecurring income statement line items. See Table 4 for a list of the earnings exclusion categories.
<i>RECUR</i>	Equals “1” if the firm reports one or more recurring item adjustments within the final IPO prospectus; “0” otherwise.
<i>NONRECUR</i>	Equals “1” if the firm reports one or more nonrecurring item adjustments within the final IPO prospectus; “0” otherwise.
<i>SPECIAL</i>	Equals “1” if the firm reports one or more special item adjustments within the final IPO prospectus; “0” otherwise.

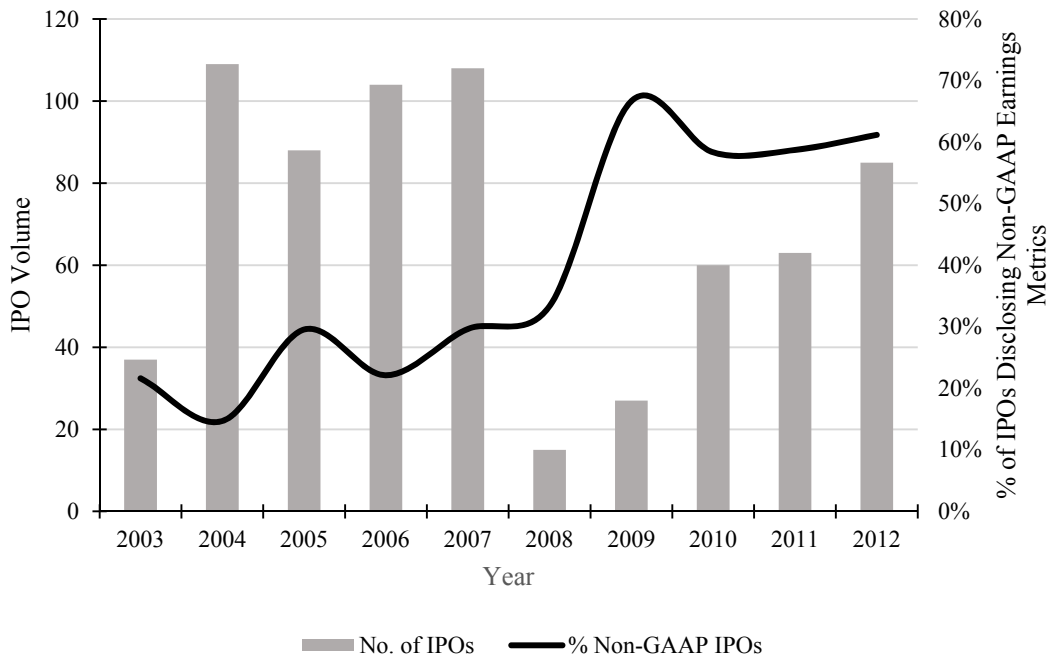
<i>BELOWLINE</i>	Equals “1” if the firm reports one or more below-the-line item adjustments within the final IPO prospectus; “0” otherwise.
<b><i>IPO Valuation Variables</i></b>	
<i>FIRSTDAYRET</i>	The percentage change from the offer price to the closing price on the first day of trading.
<i>REVISION</i>	The percentage upward revision in the final offer price from the mid-point of the filing range.
<i>posREVISION</i>	The percentage upward revision in the offer price from the mid-point of the filing range if the offer price is greater than the mid-point; “0” otherwise.
<i>RETVOL</i>	The standard deviation of daily stock returns over one month beginning on the first trading day after the IPO date (+1 to +24 trading days).
<b><i>Other IPO Characteristics</i></b>	
<i>DEBTCOV</i>	Equals “1” if the firms discusses debt covenant restrictions based on non-GAAP earnings metrics in the prospectus; “0” otherwise.
<i>IND_NG</i>	The percentage of public, same-industry firms disclosing a non-GAAP earnings metric in SEC-filed earnings announcements in the calendar quarter closest to the IPO’s filing date. Industry groupings are based on the Fama-French 48 industry classification scheme. Firms disclosing non-GAAP earnings metrics are identified by programmatically searching all earnings announcements filed on Form 8-K with the SEC. See Bentley et al. [2015] for further details.
<i>IND_EARNVOL</i>	The average industry standard deviation of return on assets over at least three of the past eight calendar quarters preceding the IPO’s filing date.
<i>SHARE_RETAIN</i>	The proportion of shares retained in the firm, computed as one minus the number of shares sold in the IPO divided by the number of post-IPO shares outstanding.
<i>INSIDER_SELL</i>	The number of shares sold by selling shareholders divided by the number of shares sold in the initial offering.
<i>MKTRET</i>	The buy-and-hold returns of the CRSP NASDAQ value-weighted index over the 15 trading days prior to the IPO date.
<i>posMKTRET</i>	Equals positive values of <i>MKTRET</i> ; “0” otherwise.
<i>TONE</i>	First principal component of the percentages of uncertain, negative, and weak modal words contained in the IPO prospectus. These percentages are computed using the Loughran and McDonald (2011) word lists. See Loughran and McDonald (2013) for further details.
<i>DAYS</i>	Natural log of the number of calendar days between the filing of the initial IPO prospectus on SEC EDGAR (Form S-1) and the final prospectus (Form 424).
<i>PROCEEDS</i>	Natural log of one plus the IPO proceeds in \$millions as reported in SDC Platinum, excluding overallotment options.
<i>NYSE/AMEX</i>	Equals “1” if the IPO lists on the New York Stock Exchange or the American Stock Exchange; “0” otherwise.
<i>LITIGATE</i>	Equals “1” for firms operating in the biotechnology (SIC 2833-2836; 8731-8734), computers (3570-3577; 7370-7374), electronics (3600-3674), and retailing (5200-5961) industries; “0” otherwise.
<i>TOPUW</i>	Equals “1” if the issuing firm’s lead underwriter (bookrunner) has a value of eight or more in the Caster-Manaster reputation rankings; “0” otherwise.

<i>TOPAUDIT</i>	Equals “1” if the issuing firm is audited by a Big N audit firm (PwC, EY, KMPG, Deloitte or Grant Thornton); “0” otherwise.
<i>VENTURE</i>	Equals “1” if the issuing firm is backed by venture capital or private equity; “0” otherwise.
<i>SPINOFF</i>	Equals “1” if the issuing firm is a spinoff or equity carve-out of a division or subsidiary; “0” otherwise.
<i>LTDPARTNER</i>	Equals “1” if the issuing firm is organized as a limited partnership; “0” otherwise.
<i>ASSETS</i>	Natural log of total assets in \$thousands as of the beginning of the most current fiscal period as reported in the final prospectus.
<i>AGE</i>	Natural log of one plus the age of the IPO firm. We compute firm age using the Field-Ritter dataset of IPO founding dates.
<i>HITECH</i>	Equals “1” for firms operating in the biotechnology (SIC 2833-2836; 8731-8734), computers (3570-3577; 7370-7374), electronics (3600-3674) and retailing (5200-5961) industries; “0” otherwise.
<i>TREND</i>	Yearly time trend variable for all calendar years over the 2003-2012 period.

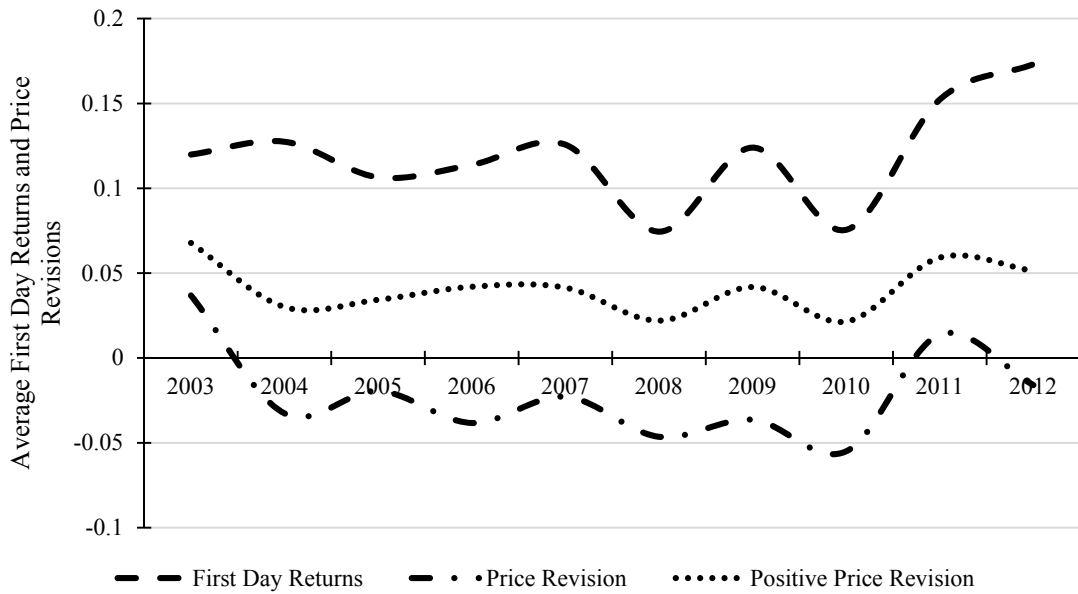


**FIGURE 1**

**Panel A: IPO Volume and Distribution of Non-GAAP Earnings Disclosure**



**Panel B: Time-Series Plot of IPO First Day Returns and Price Revisions**



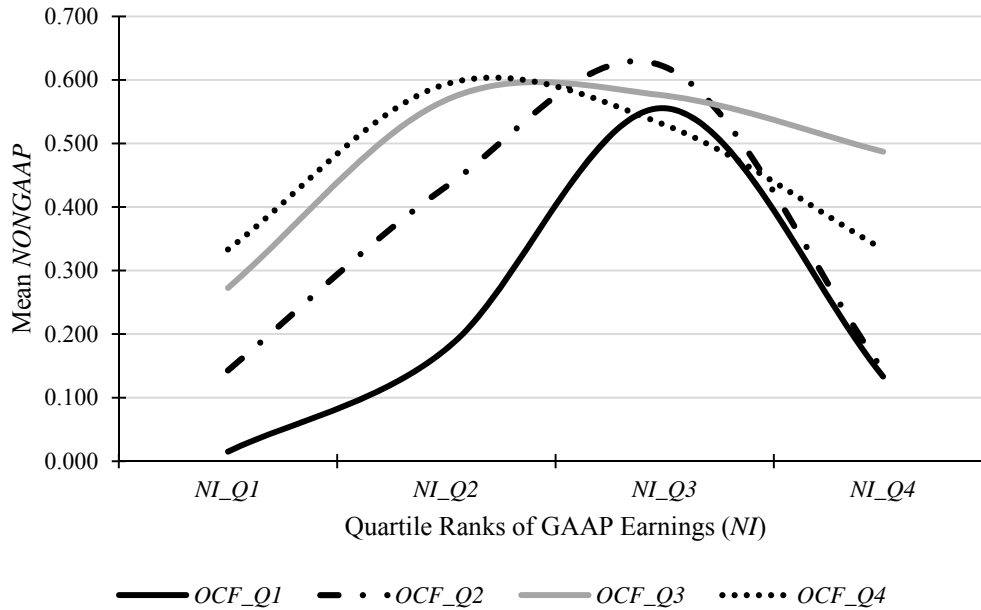
Notes:

**TABLE 1**  
**Percentage of Non-GAAP IPOs sorted by Pre-IPO GAAP Performance**

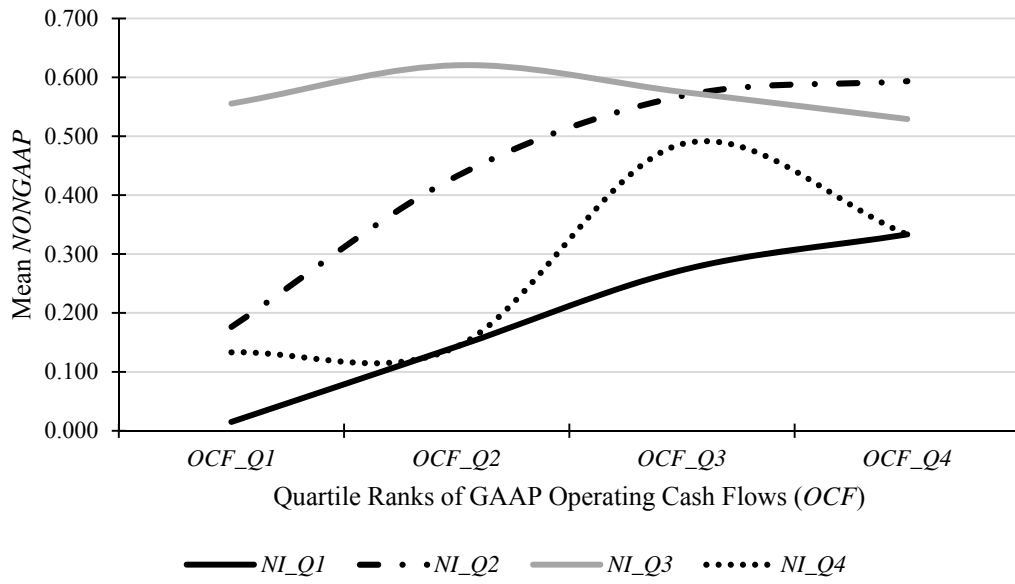
<b>Panel A: Mean <i>NONGAAP</i> sorted by Positive versus Negative <i>NI</i> and <i>OCF</i></b>				
	Positive <i>OCF</i>	Negative <i>OCF</i>	Difference in Means	<i>t</i> -statistic
Positive <i>NI</i>	0.470	0.394	0.076	(1.13)
Negative <i>NI</i>	0.521	0.086	0.435	(8.68)***
Difference in Means	-0.051	0.308		
<i>t</i> -statistic	(-0.95)	(4.82)***		

<b>Panel B: Mean <i>NONGAAP</i> sorted by Quartile Ranks of <i>NI</i> and <i>OCF</i></b>						
	<i>OCF_Q1</i>	<i>OCF_Q2</i>	<i>OCF_Q3</i>	<i>OCF_Q4</i>	Difference in Means: <i>OCF_Q4 - OCF_Q1</i>	<i>t</i> -statistic
<i>NI_Q1</i>	0.015	0.143	0.273	0.333	0.318	(4.08)***
<i>NI_Q2</i>	0.176	0.432	0.569	0.594	0.417	(2.84)***
<i>NI_Q3</i>	0.556	0.621	0.575	0.529	-0.026	(0.89)
<i>NI_Q4</i>	0.133	0.143	0.487	0.333	0.200	(0.12)
Difference in Means: <i>NI_Q4 - NI_Q1</i>	0.118	0.000	0.214	0.000		
<i>t</i> -statistic	(1.95)*	(0.00)	(1.26)	(0.00)		

**Panel C: Figure of Mean *NONGAAP* for Quartile Ranks of *OCF* Across Ranks of *NI***



**Panel D: Figure of Mean *NONGAAP* for Quartile Ranks of *NI* Across Ranks of *OCF***



Notes:

**TABLE 2**  
**Summary Statistics**

<i>Variable</i>	<i>NONGAAP = 1 (N = 252)</i>					<i>NONGAAP = 0 (N = 444)</i>					Tests of Differences		
	Mean	Std. Dev.	25th	Median	75th	Mean	Std. Dev.	25th	Median	75th	Difference in Means	<i>t</i> -test	Wilcoxon <i>z</i> -statistic
<b>Panel A: Characteristics of Non-GAAP Disclosures in IPO Filings</b>													
<i>NGWORD_PCT</i>	0.059	0.084	0.000	0.029	0.074	-	-	-	-	-	-	-	-
<i>NI</i>	0.026	0.151	-0.015	0.024	0.071	-0.278	0.627	-0.478	-0.017	0.087	0.304	(9.72)***	(5.32)***
<i>OCF</i>	0.113	0.224	0.038	0.089	0.178	-0.166	0.540	-0.420	0.001	0.136	0.279	(9.53)***	(7.22)***
<i>abs(NI)</i>	0.092	0.122	0.023	0.045	0.105	0.415	0.546	0.062	0.185	0.558	-0.323	(-11.96)***	(-10.71)***
<i>abs(OCF)</i>	0.168	0.187	0.056	0.108	0.196	0.368	0.429	0.084	0.201	0.503	-0.200	(-8.51)***	(-6.69)***
<i>negNI</i>	0.313	0.465	0.000	0.000	1.000	0.536	0.499	0.000	1.000	1.000	-0.223	(-5.91)***	(-5.66)***
<i>negOCF</i>	0.171	0.377	0.000	0.000	0.000	0.498	0.501	0.000	0.000	1.000	-0.327	(-9.74)***	(-8.54)***
<i>NI_NG</i>	0.179	0.157	0.102	0.154	0.218	-	-	-	-	-	-	-	-
<i>EXCL_TOTAL</i>	0.153	0.134	0.084	0.126	0.196	-	-	-	-	-	-	-	-
<i>EXCL_RECUR</i>	0.086	0.119	0.040	0.074	0.128	-	-	-	-	-	-	-	-
<i>EXCL_NONRECUR</i>	0.067	0.116	0.015	0.048	0.081	-	-	-	-	-	-	-	-
<b>Panel B: Covariates of IPO Pricing and Non-GAAP Disclosure</b>													
<i>IND_EARNVOL</i>	1.435	2.136	0.171	0.724	1.435	1.198	1.376	0.329	0.878	1.565	0.237	(1.59)	(2.32)**
<i>DEBTCOV</i>	0.417	0.494	0.000	0.000	1.000	0.047	0.213	0.000	0.000	0.000	0.369	(11.29)***	(12.15)***
<i>IND_NG</i>	30.283	13.005	20.660	29.677	40.998	24.501	11.417	15.957	22.984	30.679	5.783	(5.89)***	(6.25)***
<i>SHARE_RETAIN</i>	0.691	0.160	0.617	0.724	0.801	0.711	0.133	0.658	0.735	0.787	-0.020	(-1.70)*	(-1.18)
<i>INSIDER_SELL</i>	0.213	0.283	0.000	0.045	0.333	0.139	0.238	0.000	0.000	0.218	0.074	(3.50)***	(3.63)***
<i>MKTRET</i>	0.009	0.036	-0.015	0.010	0.036	0.004	0.035	-0.021	0.008	0.031	0.005	(1.72)*	(1.70)*
<i>posMKTRET</i>	0.020	0.022	0.000	0.010	0.036	0.016	0.020	0.000	0.008	0.031	0.003	(1.83)*	(1.78)*
<i>PROCEEDS</i>	4.488	1.324	4.010	4.560	5.275	4.023	1.080	3.628	4.069	4.557	0.465	(4.75)***	(6.94)***
<i>NYSE/AMEX</i>	0.575	0.495	0.000	1.000	1.000	0.232	0.423	0.000	0.000	0.000	0.343	(9.26)***	(9.08)***
<i>TONE</i>	-0.606	1.128	-1.448	-0.735	0.134	0.347	1.443	-0.658	0.301	1.403	-0.953	(-9.65)***	(-8.59)***
<i>DAYS</i>	4.894	0.638	4.522	4.771	5.244	4.757	0.657	4.454	4.663	5.021	0.137	(2.69)***	(2.97)***
<i>LITIGATE</i>	0.290	0.455	0.000	0.000	1.000	0.498	0.501	0.000	0.000	1.000	-0.208	(-5.59)***	(-5.34)***

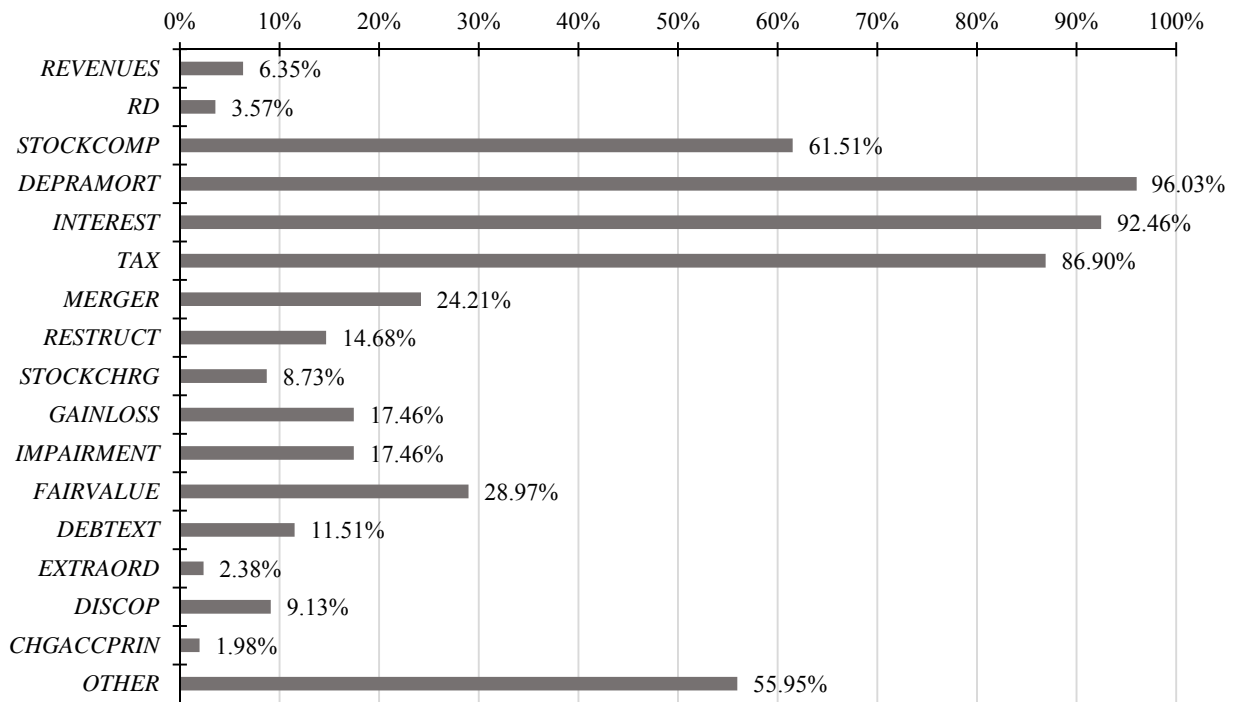
<i>VENTURE</i>	0.794	0.406	1.000	1.000	1.000	0.779	0.415	1.000	1.000	1.000	0.014	(0.44)	(0.44)
<i>TOPUW</i>	0.829	0.377	1.000	1.000	1.000	0.682	0.466	0.000	1.000	1.000	0.147	(4.53)***	(4.22)***
<i>SPINOFF</i>	0.147	0.355	0.000	0.000	0.000	0.041	0.197	0.000	0.000	0.000	0.106	(4.39)***	(4.99)***
<i>LTDPARTNER</i>	0.107	0.310	0.000	0.000	0.000	0.018	0.133	0.000	0.000	0.000	0.089	(4.34)***	(5.17)***
<i>TOPAUDIT</i>	0.917	0.277	1.000	1.000	1.000	0.885	0.319	1.000	1.000	1.000	0.032	(1.36)	(1.31)
<i>AGE</i>	2.709	1.134	2.079	2.639	3.481	2.416	0.802	1.946	2.303	2.833	0.293	(3.62)***	(4.51)***
<i>HITECH</i>	0.119	0.324	0.000	0.000	0.000	0.194	0.396	0.000	0.000	0.000	-0.075	(2.69)***	(2.54)***
<i>LAG_ASSETS</i>	12.646	1.486	11.569	12.552	13.684	11.072	1.507	10.158	10.849	11.926	1.574	(13.36)***	(11.99)***
<i>TREND</i>	5.583	2.859	3.000	6.000	8.000	3.486	2.613	1.000	3.000	4.000	2.097	(9.59)***	(8.84)***

Notes:

**TABLE 3**  
**The Components of Non-GAAP Earnings Exclusions Contained in IPO Filings**

<b>Panel A: Summary Statistics</b>		
Type of Earnings Exclusion	No. of Filings	% of 252 Filings
Recurring Exclusions ( <i>RECUR</i> )	250	99.21%
Revenue-related adjustments ( <i>REVENUES</i> )	16	6.35%
R&D costs and write-offs of purchased in-process R&D ( <i>RD</i> )	9	3.57%
Stock-based compensation costs ( <i>STOCKCOMP</i> )	155	61.51%
Depreciation and Amortization Costs ( <i>DEPRAMORT</i> )	242	96.03%
Interest-related adjustments ( <i>INTEREST</i> )	233	92.46%
Tax-related adjustments ( <i>TAX</i> )	219	86.90%
Nonrecurring Exclusions ( <i>NONRECUR</i> )	180	71.43%
Special Items Exclusions ( <i>SPECIAL</i> )	174	69.05%
Merger and acquisition-related costs ( <i>MERGER</i> )	61	24.21%
Restructuring charges ( <i>RESTRUCT</i> )	37	14.68%
Stock-related charges ( <i>STOCKCHRG</i> )	22	8.73%
Gains and losses on sales of assets ( <i>GAINLOSS</i> )	44	17.46%
Asset impairment charges ( <i>IMPAIRMENT</i> )	44	17.46%
Changes in fair value ( <i>FAIRVALUE</i> )	73	28.97%
Early debt extinguishment ( <i>DEBTEXT</i> )	29	11.51%
Below-the-Line Items ( <i>BELOWLINE</i> )	31	12.30%
Extraordinary items ( <i>EXTRAORD</i> )	6	2.38%
Discontinued operations ( <i>DISCOP</i> )	23	9.13%
Cumulative change in accounting principle ( <i>CHGACCPRIN</i> )	5	1.98%
All other adjustments ( <i>OTHER</i> )	141	55.95

**Panel B: Figure of Components of Non-GAAP Earnings Exclusions**



**TABLE 4**  
**OLS Regressions of the Components of Non-GAAP Earnings Exclusions**

Dependent Variable:	<i>EXCL</i> <sub>TOTAL</sub>	<i>EXCL</i> <sub>TOTAL</sub>	<i>EXCL</i> <sub>RECUR</sub>	<i>EXCL</i> <sub>TOTAL</sub>
	<u>Model 1</u>	<u>Model 2</u>	<u>Model 3</u>	<u>Model 4</u>
<i>RECUR</i>	0.1543 (6.97)***	0.1579 (8.09)***		
<i>NONRECUR</i>	-0.0059 (-0.29)			
<i>SPECIAL</i>		0.0007 (0.04)		
<i>BELOWLINE</i>		-0.0615 (-4.93)***		
<i>OTHER</i>	0.0308 (2.59)**	0.0352 (2.87)***	0.0193 (2.51)**	0.0311 (2.06)**
<i>REVENUES</i>			0.0526 (3.72)***	0.0106 (0.56)
<i>RD</i>			0.0476 (0.85)	0.0053 (0.11)
<i>STOCKCOMP</i>			0.0325 (2.61)**	0.0293 (1.83)*
<i>DEPRAMORT</i>			0.0960 (2.24)**	0.0917 (3.11)***
<i>INTEREST</i>			0.0711 (2.19)**	0.0569 (2.41)**
<i>TAX</i>			-0.0317 (-1.14)	-0.0091 (-0.26)
<i>MERGER</i>				-0.0390 (-2.05)**
<i>RESTRUCT</i>				0.0311 (1.02)
<i>STOCKCHRG</i>				0.0176 (0.47)
<i>GAINLOSS</i>				-0.0116 (-0.77)
<i>IMPAIRMENT</i>				-0.0096 (-0.44)
<i>FAIRVALUE</i>				-0.0088 (-0.52)
<i>DEBTEXT</i>				0.0204 (0.50)
<i>EXTRAORD</i>				-0.0173 (-0.86)
<i>DISCOP</i>				-0.0464 (-2.86)***
<i>CHGACCPRIN</i>				-0.1098 (-2.83)***
<i>TIME_TREND</i>	-0.0021 (-0.99)	-0.0020 (-0.94)	-0.0002 (-0.11)	-0.0017 (-0.73)
<i>Constant</i>	-0.0012 (-0.07)	-0.0048 (-0.31)	-0.0785 (-2.74)***	0.0076 (0.21)
Fixed Year Effects	Yes	Yes	Yes	Yes
Adjusted R2	0.01	0.03	0.09	0.06
No. of Observations	252	252	252	252

Notes:



**Table 5**  
**Logit Analysis of the Probability of Disclosing Non-GAAP Earnings in IPO Filings**

	Dependent Variable: Pr ( <i>NONGAAP</i> = 1)					Average Marginal Effects				
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 1	Model 2	Model 3	Model 4	Model 5
<i>posNI_negOCF</i>	0.0559 (0.19)					0.0070 (0.18)				
<i>negNI_posOCF</i>	0.4200 (1.76)*					0.0536 (1.71)*				
<i>negNI_negOCF</i>	-1.4672 (-4.03)***					-0.1826 (-5.46)***				
<i>NI</i>		0.9015 (2.08)**					0.1113 (2.01)**			
<i>abs(NI)</i>		-3.7377 (-4.15)***					-0.4614 (-5.11)***			
<i>OCF</i>			1.5009 (3.38)***					0.1915 (3.53)***		
<i>abs(OCF)</i>			-0.6241 (-1.46)					-0.0796 (-1.54)		
<i>NI_Q2</i>				1.8718 (5.56)***					0.2415 (5.75)***	
<i>NI_Q3</i>				2.3802 (7.12)***					0.3218 (8.42)***	
<i>NI_Q4</i>				1.5592 (4.02)***					0.1865 (3.74)***	
<i>OCF_Q2</i>					1.0745 (2.83)***					0.1407 (2.92)***
<i>OCF_Q3</i>					1.3546 (2.85)***					0.1836 (2.93)***
<i>OCF_Q4</i>					1.6219 (3.84)***					0.2070 (3.74)***
<i>DEBTCOV</i>	1.8807 (5.62)***	1.9223 (5.72)***	1.9129 (6.04)***	1.9389 (5.74)***	1.9712 (6.24)***	0.2845 (6.76)***	0.2799 (7.29)***	0.2951 (7.20)	0.2896 (6.93)***	0.3043 (7.16)***
<i>IND_NG</i>	0.0451 (2.85)***	0.0413 (2.74)***	0.0406 (2.58)***	0.0438 (2.81)***	0.0426 (2.70)***	0.0056 (3.02)***	0.0051 (2.87)***	0.0052 (2.68)**	0.0054 (2.96)***	0.0054 (2.80)***

<i>IND_EARNVOL</i>	0.0446 (0.75)	0.0849 (1.40)	0.0456 (0.81)	0.1065 (1.67)*	0.0478 (0.85)	0.0056 (0.76)	0.0105 (1.44)	0.0058 (0.82)	0.0132 (1.71)*	0.0060 (0.86)
<i>SHARE_RETAIN</i>	-1.0550 (-0.97)	-0.7105 (-0.70)	-1.0555 (-1.00)	-0.6649 (-0.64)	-1.0558 (-1.00)	-0.1315 (-0.99)	-0.0877 (-0.71)	-0.1347 (-1.02)	-0.0822 (-0.65)	-0.1338 (-1.01)
<i>INSIDER_SELL</i>	0.0859 (0.18)	0.0764 (0.17)	0.1321 (0.29)	0.1660 (0.34)	0.1271 (0.27)	0.0107 (0.18)	0.0094 (0.17)	0.0169 (0.29)	0.0205 (0.34)	0.0161 (0.28)
<i>LITIGATE</i>	-0.7756 (-2.26)**	-0.8327 (-2.21)**	-0.7662 (-2.17)**	-0.8044 (-2.12)**	-0.7753 (-2.27)**	-0.0971 (-2.49)**	-0.1028 (-2.44)**	-0.0981 (-2.38)**	-0.1000 (-2.32)**	-0.0986 (-2.49)**
<i>TOPUW</i>	-0.3371 (-1.11)	-0.3683 (-1.22)	-0.4222 (-1.43)	-0.4394 (-1.46)	-0.3964 (-1.33)	-0.0418 (-1.15)	-0.0452 (-1.26)	-0.0537 (-1.50)	-0.0541 (-1.51)	-0.0501 (-1.37)
<i>TOPAUDIT</i>	-0.4375 (-1.37)	-0.3559 (-0.95)	-0.4310 (-1.33)	-0.4051 (-1.13)	-0.5049 (-1.61)	-0.0553 (-1.42)	-0.0444 (-0.97)	-0.0559 (-1.38)	-0.0508 (-1.16)	-0.0652 (-1.67)*
<i>VENTURE</i>	0.7697 (1.84)*	0.7522 (1.84)*	0.8385 (1.89)*	0.7851 (1.82)*	0.8756 (1.96)**	0.0937 (1.79)*	0.0915 (1.81)*	0.1036 (1.82)*	0.0949 (1.79)*	0.1074 (1.88)*
<i>SPINOFF</i>	0.3420 (0.64)	0.3580 (0.71)	0.4326 (0.79)	0.3895 (0.75)	0.4313 (0.79)	0.0437 (0.62)	0.0452 (0.70)	0.0570 (0.77)	0.0495 (0.73)	0.0565 (0.77)
<i>LTDPARTNER</i>	1.2870 (2.13)**	1.2372 (2.27)**	1.2519 (2.09)**	1.2506 (2.13)**	1.2552 (2.02)**	0.1731 (2.07)**	0.1616 (2.22)**	0.1723 (2.01)**	0.1662 (2.08)**	0.1724 (1.91)*
<i>ASSETS</i>	0.3976 (4.61)***	0.2556 (2.53)**	0.4060 (4.96)***	0.3061 (2.75)***	0.4163 (4.67)***	0.0496 (4.95)***	0.0315 (2.50)**	0.0518 (5.22)***	0.0378 (2.81)***	0.0527 (4.91)***
<i>AGE</i>	0.1094 (0.95)	0.1059 (0.86)	0.1318 (1.12)	0.0980 (0.82)	0.1274 (1.10)	0.0136 (0.95)	0.0131 (0.86)	0.0168 (1.13)	0.0121 (0.81)	0.0161 (1.11)
<i>HITECH</i>	-0.5686 (-1.40)	-0.4473 (-1.01)	-0.5579 (-1.40)	-0.4068 (-0.97)	-0.5133 (-1.30)	-0.0698 (-1.43)	-0.0550 (-1.02)	-0.0701 (-1.43)	-0.0500 (-0.99)	-0.0641 (-1.33)
<i>TREND</i>	0.1794 (2.15)**	0.1831 (2.34)**	0.1796 (2.24)**	0.1791 (2.31)**	0.1767 (2.08)**	0.0223 (2.11)**	0.0226 (2.31)**	0.0229 (2.21)**	0.0221 (2.24)**	0.0224 (2.06)**
<i>Constant</i>	-6.6669 (-5.03)***	-4.7959 (-3.14)***	-6.8305 (-5.11)***	-7.7566 (-4.73)***	-8.2232 (-5.89)***					
Fixed Year Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of Observations	696	696	696	696	696	696	696	696	696	696
Adjusted R2	0.40	0.41	0.39	0.41	0.39					

Notes:

**TABLE 6**  
**OLS Regression of Non-GAAP Disclosure Intensity in IPO Filings**

<i>Variables</i>	Dependent Variable: <i>NGWORD_PCT</i>				
	<u>Model 1</u>	<u>Model 2</u>	<u>Model 3</u>	<u>Model 4</u>	<u>Model 5</u>
<i>posNI_negOCF</i>	0.0008 (0.10)				
<i>negNI_posOCF</i>	0.0109 (2.02)*				
<i>negNI_negOCF</i>	-0.0176 (-3.51)***				
<i>NI</i>		-0.0039 (-0.95)			
<i>abs(NI)</i>		-0.0200 (-2.87)***			
<i>OCF</i>			0.0191 (2.32)**		
<i>abs(OCF)</i>			0.0071 (0.69)		
<i>NI_Q2</i>				0.0228 (3.28)***	
<i>NI_Q3</i>				0.0250 (4.63)***	
<i>NI_Q4</i>				0.0128 (2.67)**	
<i>OCF_Q2</i>					0.0144 (4.16)***
<i>OCF_Q3</i>					0.0148 (2.98)***
<i>OCF_Q4</i>					0.0231 (3.59)***
<i>Constant</i>	-0.0097 (-0.46)	-0.0015 (-0.07)	-0.0200 (-0.91)	-0.0240 (-1.48)	-0.0319 (-1.92)*
<i>Control Variables</i>	Included	Included	Included	Included	Included
Fixed Year Effects	Yes	Yes	Yes	Yes	Yes
No. of Observations	696	696	696	696	696
Adjusted R2	0.11	0.10	0.10	0.11	0.10

Notes:

**TABLE 7**  
**OLS Regressions of IPO First Day Return and Post-IPO Return Volatility**

	Dependent Variable: <i>FIRSTDAYRET</i>				Dependent Variable: <i>RETVOL</i>			
	<u>Model 1</u>	<u>Model 2</u>	<u>Model 3</u>	<u>Model 4</u>	<u>Model 5</u>	<u>Model 6</u>	<u>Model 7</u>	<u>Model 8</u>
<i>NI</i>	0.0365 (2.64)**	0.0361 (2.57)**	0.0364 (2.65)**	0.0365 (2.61)**	-0.0035 (-2.34)**	-0.0033 (-2.27)**	-0.0035 (-2.36)**	-0.0034 (-2.37)**
<i>NONGAAP</i>		0.0056 (0.34)				-0.0018 (-1.34)		
<i>EXCL<sub>TOTAL</sub></i>			0.0915 (1.93)*				0.0021 (0.47)	
<i>EXCL<sub>RECUR</sub></i>				0.1400 (2.18)**				0.0114 (2.17)**
<i>EXCL<sub>NONRECUR</sub></i>				0.0351 (0.50)				-0.0088 (-1.60)
<i>SHARE_RETAIN</i>	0.1428 (2.99)***	0.1434 (2.99)***	0.1443 (3.02)***	0.1436 (2.99)***	0.0101 (3.17)***	0.0099 (3.18)***	0.0102 (3.19)***	0.0100 (3.17)***
<i>INSIDER_SELL</i>	0.0913 (2.79)***	0.0907 (2.80)***	0.0861 (2.58)**	0.0874 (2.60)**	-0.0046 (-1.74)*	-0.0044 (-1.69)*	-0.0047 (-1.76)*	-0.0045 (-1.65)
<i>MKTRET</i>	0.1862 (0.43)	0.1840 (0.43)	0.1742 (0.40)	0.1461 (0.33)	-0.1074 (-3.83)***	-0.1067 (-3.87)***	-0.1077 (-3.81)***	-0.1131 (-3.89)***
<i>posMKTRET</i>	0.4023 (0.59)	0.3988 (0.58)	0.4248 (0.62)	0.4696 (0.66)	0.1672 (3.95)***	0.1683 (4.02)***	0.1677 (3.95)***	0.1763 (4.09)***
<i>TONE</i>	0.0020 (0.45)	0.0021 (0.47)	0.0026 (0.57)	0.0029 (0.63)	0.0008 (2.06)**	0.0008 (1.88)*	0.0009 (2.07)**	0.0009 (2.22)**
<i>DAYS</i>	-0.0053 (-0.55)	-0.0053 (-0.55)	-0.0056 (-0.59)	-0.0054 (-0.58)	-0.0006 (-0.89)	-0.0006 (-0.89)	-0.0006 (-0.91)	-0.0005 (-0.79)
<i>PROCEEDS</i>	0.0111 (1.37)	0.0110 (1.38)	0.0098 (1.20)	0.0103 (1.23)	-0.0007 (-1.07)	-0.0007 (-1.04)	-0.0008 (-1.09)	-0.0007 (-0.94)
<i>NYSE/AMEX</i>	-0.0172 (-0.94)	-0.0176 (-0.99)	-0.0183 (-1.01)	-0.0178 (-0.99)	0.0004 (0.41)	0.0006 (0.53)	0.0004 (0.39)	0.0005 (0.48)
<i>LITIGATE</i>	-0.0082 (-0.52)	-0.0079 (-0.52)	-0.0068 (-0.45)	-0.0065 (-0.44)	-0.0003 (-0.44)	-0.0004 (-0.57)	-0.0003 (-0.40)	-0.0003 (-0.34)
<i>TOPUW</i>	-0.0069 (-0.48)	-0.0068 (-0.47)	-0.0072 (-0.50)	-0.0071 (-0.49)	0.0026 (2.38)**	0.0026 (2.37)**	0.0026 (2.35)**	0.0026 (2.31)**

<i>TOPAUDIT</i>	0.0150 (0.56)	0.0156 (0.56)	0.0175 (0.63)	0.0162 (0.59)	-0.0027 (-1.70)*	-0.0029 (-1.84)*	-0.0026 (-1.62)	-0.0029 (-1.78)*
<i>VENTURE</i>	0.0175 (0.90)	0.0166 (0.81)	0.0141 (0.72)	0.0148 (0.75)	-0.0005 (-0.53)	-0.0001 (-0.17)	-0.0005 (-0.64)	-0.0004 (-0.49)
<i>SPINOFF</i>	0.0595 (2.83)***	0.0591 (2.81)***	0.0582 (2.80)***	0.0600 (2.93)***	-0.0013 (-0.68)	-0.0011 (-0.60)	-0.0013 (-0.71)	-0.0009 (-0.51)
<i>LTDPARTNER</i>	-0.0296 (-0.94)	-0.0311 (-0.94)	-0.0353 (-1.06)	-0.0339 (-1.05)	-0.0115 (-6.19)***	-0.0110 (-5.79)***	-0.0117 (-6.09)***	-0.0114 (-6.71)***
<i>ASSETS</i>	-0.0158 (-2.53)**	-0.0161 (-2.38)**	-0.0154 (-2.54)**	-0.0154 (-2.63)**	-0.0016 (-3.53)***	-0.0015 (-3.47)***	-0.0016 (-3.48)***	-0.0016 (-3.49)***
<i>AGE</i>	0.0010 (0.19)	0.0008 (0.15)	0.0002 (0.03)	0.0004 (0.08)	-0.0007 (-1.20)	-0.0006 (-1.04)	-0.0007 (-1.19)	-0.0007 (-1.16)
<i>HITECH</i>	-0.0022 (-0.13)	-0.0020 (-0.12)	-0.0021 (-0.14)	-0.0026 (-0.18)	0.0025 (2.17)**	0.0024 (2.12)**	0.0025 (2.18)**	0.0024 (2.02)*
<i>TREND</i>	0.0078 (3.22)***	0.0077 (3.16)***	0.0074 (3.05)***	0.0070 (2.77)***	0.0003 (1.16)	0.0003 (1.48)	0.0003 (1.10)	0.0002 (0.78)
<i>REVISION</i>	0.2448 (3.83)***	0.2446 (3.83)***	0.2507 (3.82)***	0.2490 (3.86)***	0.0082 (1.58)	0.0083 (1.58)	0.0084 (1.62)	0.0081 (1.55)
<i>posREVISION</i>	1.1127 (5.10)***	1.1151 (5.09)***	1.1062 (5.02)***	1.1023 (5.00)***	0.0272 (2.97)***	0.0264 (2.88)***	0.0270 (2.96)***	0.0263 (2.86)***
<i>Constant</i>	0.0607 (0.78)	0.0637 (0.79)	0.0634 (0.81)	0.0605 (0.80)	0.0443 (7.68)***	0.0433 (7.47)***	0.0443 (7.80)***	0.0438 (7.26)***
Fixed Year Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inv. Mills Ratios	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R2	0.39	0.39	0.39	0.39	0.27	0.27	0.27	0.27

Notes:

**TABLE 8**  
**OLS Regressions of IPO Price Revision**

<i>Variable</i>	Dependent Variable: <i>REVISION</i>				Dependent Variable: <i>posREVISION</i>			
	<u>Model 1</u>	<u>Model 2</u>	<u>Model 3</u>	<u>Model 4</u>	<u>Model 5</u>	<u>Model 6</u>	<u>Model 7</u>	<u>Model 8</u>
<i>NI</i>	0.0351 (2.30)**	0.0360 (2.39)**	0.0351 (2.29)**	0.0352 (2.31)**	0.0178 (3.31)***	0.0184 (3.54)***	0.0178 (3.30)***	0.0178 (3.34)***
<i>NONGAAP</i>		-0.0149 (-1.73)*				-0.0103 (-2.35)**		
<i>EXCL<sub>TOTAL</sub></i>			-0.0626 (-1.69)*				-0.0122 (-0.60)	
<i>EXCL<sub>RECUR</sub></i>				-0.0001 (-0.00)				0.0182 (0.81)
<i>EXCL<sub>NONRECUR</sub></i>				-0.1354 (-2.81)***				-0.0477 (-2.03)**
<i>Constant</i>	0.1649 (2.88)***	0.1561 (2.75)***	0.1631 (2.82)***	0.1582 (2.70)**	0.1417 (4.35)***	0.1357 (4.18)***	0.1414 (4.31)***	0.1390 (4.21)***
<i>Control Variables</i>	Included	Included	Included	Included	Included	Included	Included	Included
Fixed Year Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inv. Mills Ratios	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of Observations	696	696	696	696	696	696	696	696
Adjusted R2	0.14	0.14	0.15	0.15	0.21	0.21	0.21	0.21

Notes:

**TABLE 9**  
**Interaction Effects of IPO Prospectus Tone**

Dependent Variable:	<i>FIRSTDAYRET</i>			<i>RETVOL</i>			<i>REVISION</i>			<i>posREVISION</i>		
	<u>Model 1</u>	<u>Model 2</u>	<u>Model 3</u>	<u>Model 1</u>	<u>Model 2</u>	<u>Model 3</u>	<u>Model 1</u>	<u>Model 2</u>	<u>Model 3</u>	<u>Model 1</u>	<u>Model 2</u>	<u>Model 3</u>
<i>NI</i>	0.0336 (2.44)**	0.0356 (2.59)**	0.0358 (2.56)**	-0.0034 (-2.23)**	-0.0036 (-2.48)**	-0.0035 (-2.46)**	0.0361 (2.45)**	0.0351 (2.30)**	0.0353 (2.34)**	0.0171 (3.07)***	0.0169 (3.00)***	0.0169 (3.04)***
<i>NONGAAP</i>	-0.0202 (-1.03)			-0.0017 (-1.21)			-0.0208 (-1.86)*			-0.0231 (-4.19)***		
<i>EXCLTOTAL</i>		-0.0818 (-0.86)			-0.0018 (-0.26)			-0.1412 (-2.28)**			-0.1171 (-3.87)***	
<i>EXCLRECUR</i>			-0.0616 (-0.50)			0.0067 (0.64)			-0.1178 (-1.54)			-0.0876 (-2.21)**
<i>EXCLNONRECUR</i>			-0.0997 (-0.58)			-0.0093 (-1.10)			-0.1610 (-1.74)*			-0.1426 (-2.87)***
<i>TONERANK</i>	-0.0048 (-0.25)	-0.0009 (-0.05)	0.0011 (0.06)	0.0026 (1.35)	0.0023 (1.49)	0.0027 (1.72)*	-0.0292 (-1.74)*	-0.0329 (-1.91)*	-0.0296 (-1.67)	-0.0244 (-2.80)***	-0.0245 (-3.23)***	-0.0232 (-3.05)***
<i>TONERANK × NONGAAP</i>	0.0710 (2.57)**			-0.0004 (-0.12)			0.0164 (0.90)			0.0347 (3.48)***		
<i>TONERANK × EXCLTOTAL</i>		0.4117 (2.47)**			0.0088 (0.91)			0.1884 (1.26)			0.2477 (4.76)***	
<i>TONERANK × EXCLRECUR</i>			0.4431 (2.71)**			0.0093 (0.58)			0.2518 (2.22)**			0.2381 (3.84)***
<i>TONERANK × EXCLNONRECUR</i>			0.3493 (1.08)			0.0014 (0.10)			0.0746 (0.34)			0.2381 (2.78)***
<i>Constant</i>	0.0465 (0.85)	0.0447 (0.85)	0.0404 (0.80)	0.0402 (7.52)***	0.0414 (7.85)***	0.0406 (7.26)***	0.1258 (2.76)***	0.1339 (2.85)***	0.1263 (2.67)**	0.1069 (4.20)***	0.1118 (4.40)***	0.1097 (4.39)***
<i>Control Variables</i>	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Fixed Year Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inv. Mills Ratios	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R2	0.39	0.40	0.40	0.27	0.27	0.27	0.14	0.14	0.14	0.21	0.21	0.21
<i>F</i> -tests of total <i>TONERANK</i> interaction effect ( <i>p</i> -values in brackets):												
<i>NONGAAP</i>	0.0508 [0.03]			-0.0021 [0.46]			-0.0044 [0.76]			0.0116 [0.14]		
<i>EXCLTOTAL</i>		0.3299 [0.00]			0.0070 [0.21]			0.0472 [0.66]			0.1306 [0.00]	
<i>EXCLRECUR</i>			0.3815 [0.00]			0.0160 [0.04]			0.1340 [0.03]			0.1505 [0.00]
<i>EXCLNONRECUR</i>			0.2496 [0.19]			-0.0079 [0.37]			-0.0863 [0.58]			0.0955 [0.06]

**TABLE 10**  
**Interaction Effects of SEC Scrutiny of Non-GAAP Disclosures**

Dependent Variable	<i>FIRSTDAYRET</i>		<i>RETVOL</i>		<i>REVISION</i>		<i>posREVISION</i>	
	<u>Model 1</u>	<u>Model 2</u>	<u>Model 1</u>	<u>Model 2</u>	<u>Model 1</u>	<u>Model 2</u>	<u>Model 1</u>	<u>Model 2</u>
<i>NI</i>	0.0336 (1.91)*	0.0337 (1.91)*	-0.0016 (-1.18)	-0.0016 (-1.18)	.0361 (2.69)**	0.0359 (2.72)***	0.0173 (2.88)***	0.0171 (2.92)***
<i>EXCLTOTAL</i>	0.1674 (1.24)		-0.0085 (-1.26)		-0.1266 (-1.40)		-0.0558 (-1.02)	
<i>EXCLRECUR</i>		0.1811 (1.22)		0.0053 (0.57)		-0.1122 (-1.08)		-0.0401 (-0.68)
<i>EXCLNONRECUR</i>		0.1621 (1.09)		-0.0173 (-4.05)***		-0.1305 (-1.14)		-0.0636 (-1.10)
<i>NG_SECLTR</i>	0.0216 (1.19)	0.0177 (0.93)	-0.0051 (-4.63)***	-0.0055 (-4.56)***	-0.0057 (-0.33)	-0.0092 (-0.57)	-0.0130 (-1.54)	-0.0147 (-1.75)*
<i>NG_SECLTR × EXCLTOTAL</i>	-0.1086 (-0.70)		0.0270 (3.62)***		0.0809 (0.83)		0.0848 (1.73)*	
<i>NG_SECLTR × EXCLRECUR</i>		0.0220 (0.13)		0.0228 (1.86)*		0.2018 (1.66)		0.1299 (2.17)**
<i>NG_SECLTR × EXCLNONRECUR</i>		-0.2872 (-1.36)		0.0241 (3.56)***		-0.0873 (-0.70)		0.0155 (0.26)
<i>Constant</i>	0.1840 (2.38)**	0.1638 (2.16)**	0.0396 (5.86)***	0.0382 (5.26)***	0.1447 (1.92)*	0.1240 (1.58)	0.1148 (3.18)***	0.1054 (2.81)***
<i>Control Variables</i>	Included	Included	Included	Included	Included	Included	Included	Included
Fixed Year Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inv. Mills Ratios	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R2	0.38	0.38	0.26	0.27	0.12	0.13	0.17	0.17
<i>F</i> -Tests of total <i>NG_SECLTR</i> interaction effect ( <i>p</i> -values in brackets):								
<i>EXCLTOTAL</i>	0.0588 [0.28]		0.0185 [0.00]		-0.0456 [0.46]		0.0290 [0.25]	
<i>EXCLRECUR</i>		0.2031 [0.03]		0.0281 [0.00]		0.0896 [1.57]		0.0898 [0.01]
<i>EXCLNONRECUR</i>		-0.1252 [0.33]		0.0069 [0.26]		-0.2178 [0.00]		-0.0481 [0.09]

Notes: