REGULATORY INTENSITY AND NON-GAAP EARNINGS DISCLOSURE

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Regulatory Intensity and Non-GAAP Earnings Disclosure

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Abstract

This study investigates whether the firm-specific burden of regulatory compliance influences managers' choices regarding non-GAAP reporting. By utilizing the novel and rigorous measure of regulatory intensity, the results show that increased regulatory intensity enhances both the likelihood and quality of non-GAAP disclosures, consistent with non-GAAP metrics being employed transparently. The findings are validated through various robustness checks, such as alternative measures of regulatory intensity, DiD estimation, path analysis and the exclusions of possible channel. Furthermore, this association is more pronounced when firms experience heightened cost of goods sold (COGS) pressures, are financially constrained, and have weaker external monitoring. These cross-sectional analyses show that regulatory intensity functions as a behavioral deterrent that limits managerial opportunism in non-GAAP disclosures. Collectively, the findings contribute to the literature by demonstrating that regulatory intensity can paradoxically improve corporate transparency through strategic disclosure choices, providing new insights into managerial responses to evolving regulatory environments in U.S. financial markets.

Key words: Regulatory Intensity, Non-GAAP Disclosures, Strategic Disclosure

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Table of content

1. Introduction

The gradual accumulation of regulatory requirements over decades has fostered a fragmented government ecosystem characterized by duplicative mandates and conflicting provisions, resulting in significant economic distortions and a decline in entrepreneurship (McLaughlin and Ghei 2016; Peltzman 1976; Winston 1993; Parker and Kirkpatrick 2012; Trebbi and Zhang 2022). Compliance expenditures in the manufacturing sector rose at a substantial average annual rate of 7.6% between 1998 and 2012. [1] The economic magnitude of this regulatory burden gained renewed political salience when President Trump publicly criticized the pervasiveness of burdensome regulations in 2017.[2] By 2022, federal regulatory costs reached an estimated $3.079 trillion, equivalent to 12% of the U.S. GDP, highlighting that "the annual costs of regulations may be roughly as consequential as what the public pays in income taxes" (Rosen 2016).

Recent studies indicate that heightened regulatory costs disincentivize firms from pursuing public listings and may impair capital market functionality (Ewens et al. 2024; Weild 2011).[3] A growing body of empirical evidence suggests that regulatory burdens imposed on managers incentivize them to adjust corporate strategies,[4] such as reducing procedural steps, simplifying administrative requirements, altering information quality, and modifying internal control and risk management systems (Huang and Zheng 2022; Gamache et al. 2020; Benish et al. 2024; Arnold et al. 2011). Despite these insights, a notable gap remains in the literature regarding how regulatory costs are indirectly distributed through voluntary disclosure.

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[1] See https://www.thepolicycircle.org/brief/government-regulation/. For further anecdotal evidence, see the Figures section of this paper.

[2] Issued by President Trump in 2017, Executive Order 13,771 mandates that agencies eliminate two existing regulations for each new one introduced, ensuring the costs of new rules are offset by removing or revising prior ones. This focus on cutting regulatory expenses marks a significant shift from the traditional emphasis on net benefits in social regulation frameworks.

[3] Regulatory requirements and rules result in a total compliance cost equal to a significant 4.1% of the market capitalization for a median U.S. public firm.

[4] Regulation constitutes a dynamic interaction between regulators and companies, in which both parties continuously learn and adapt their strategies (Parker 2001). Regulatory bodies must appoint staff to understand market dynamics and company behaviors. Companies, in turn, may recruit management with regulatory expertise to effectively navigate the system. From a cost-benefit perspective, managers are motivated to devise strategies to handle and adapt to increasingly regulatory demands.

Specifically, I investigate how the intensity of diverse regulations influences firms' decisions to issue non-GAAP reports and the quality of such reporting. Extant research establishes that heightened regulatory intensity amplifies public oversight, economic distortions, and regulatory risk exposure (Coffee Jr 1984; Seligman 1983). Regulatory burdens impose direct compliance costs associated with higher cost of goods sold (COGS), sales, general, and administrative expenses (SG&A), and opportunity costs of time and resources diverted from development to compliance.[5] [6] [7] Regulatory compliance expenditures such as costs of searching for data and compiling the materials, software development, and employee hiring and training costs because of a specific regulatory shock are not typically reported as separate line items but are likely aggregated into SG&A. The ongoing escalation of federal-level regulatory restrictions exacerbates the substantial regulatory burden on firm's cost structures, thereby constraining their ability to reduce costs even amid declining sales (Ince 2024). In addition to these direct impacts, compliance costs can indirectly alter firms' business strategies through two channels: budget constraints and legal uncertainty, prompting corporate actions such as increased lobbying and reduced hiring (Bernanke 1983; Julio and Yook 2012; Gulen and Ion 2016; Giroud and Mueller 2017).[8] Voluntary disclosures, as unregulated communications,

[5] By manually exploiting companies' 8-K filings on the SEC website, I find that regulatory factors potentially influence managers' choices of non-GAAP reporting, with clear explanations found in the filings' non-GAAP measurement metrics section. The typical types of regulation-related exclusions are incorporated into restructuring charges, non-cash goodwill impairment, non-cash stock-based compensation expenses, tax expenses, and R&D expenditure. It is reasonable to anticipate that firms vary in the extent to which they emphasize the nature of regulatory-related activities, associated costs, and related investments. However, whether and how regulatory intensity accounts for the pattern of non-GAAP reporting over extended periods remain complex and ambiguous, due to the heterogeneous nature of regulatory policies, industry characteristics, and mixed managerial incentives.

[6] See Appendix B for more detailed examples of how firms address regulation-related issues in their 8-K filings.

[7] While companies may initially reference specific regulations in their 8-K filings as justifications for adopting non-GAAP measures, the causal relationship regarding whether firms continue to incorporate regulatory changes in their non-GAAP reporting practices in subsequent years remains ambiguous. It is also difficult to determine to what extent a new regulation affects managers' choices of non-GAAP reporting, as the reasons underlying decisions to report non-GAAP are usually complex and immeasurable—managers may also conceal the true rationale for employing non-GAAP reporting. In sectors characterized by frequent regulatory shifts, such as healthcare, mining, and livestock, managers frequently use non-GAAP reporting to exclude expenses imposed by regulations. However, based on manual of a substantial number of 8-K filings, I do not identify a consistent pattern suggesting that industries with relatively stable regulatory environments exhibit a unified standard or behavior in adopting non-GAAP reporting. Firms operating in such stable regulatory contexts may not adjust their non-GAAP reporting strategies in response to regular regulatory pressures, as the costs imposed by these regulations are consistently stable and controllable.

[8] They explore the trade-offs firms face between early investment commitments and the benefits of waiting for more information in uncertain environments, influencing cyclical investment fluctuations. Managers may implement targeted policy interventions or adjust financial reporting strategies to mitigate the adverse effects of uncertainty and enhance firm resilience.

are closely linked to a firm's regulatory context (De Villiers and Van Staden 2011; Joskow and Noll 1981). Political economy theory suggests that firms facing regulatory pressures may enhance voluntary disclosures (Gray et al., 2003).

Ex ante, it is not clear how regulatory intensity might affect managers' choices of non-GAAP reporting. On the one hand, managers may be incentivized to selectively exclude items—though not exclusively value-decreasing ones—through non-GAAP reporting, which typically results in higher earnings per share (EPS) (Allee et al. 2007; Feng et al. 2023; Curtis et al. 2014; Choi et al. 2019). Managers use non-GAAP exclusions to avert negative earnings surprises when GAAP earnings manipulation is prohibitively expensive (Doyle et al. 2013b). Furthermore, non-GAAP reporting allows managers flexibility and discretion to deal with the negative externalities of regulatory intensity, while functioning as a vital communication tool for managing perceptions (Bentley et al., 2018; Chen, 2010; Christensen et al., 2021; Frankel et al., 2011).

On the other hand, firms operating under heightened regulatory scrutiny may curtail non-GAAP disclosures. This aligns with evidence indicating that litigation risk discourages non-GAAP reporting (Cazier et al. 2024). Enhanced regulatory intensity likely elevates legal uncertainty; non-GAAP metrics, lacking authoritative guidance, inherently carry greater exposure to litigation risk. Consequently, firms facing elevated regulatory pressure may strategically reduce such disclosures to mitigate these amplified risks. Given these competing arguments, the net effect of regulatory intensity on the propensity for non-GAAP disclosure remains an unresolved empirical question.

I then examine the quality of non-GAAP reporting. Regulatory burdens impose budgetary pressures, prompting firms to prioritize compliance efforts and heighten legal uncertainty, which can result in project delays (Giroud and Mueller 2017). Non-GAAP adjustments can mitigate these regulatory risks and manage investors' perception by masking poor performance at lower costs (Bhattacharya et al. 2004; Lougee and Marquardt 2004), consistent with signaling theory, which posits that firms have an incentive to influence

investors' perceptions through voluntary disclosure (Kanagaretnam et al. 2007).[9] While non-GAAP earnings can remove regulation-related transitory items, they may also introduce opportunistic bias if inappropriately applied (McClure and Zakolyukina 2024). A growing body of literature suggests that non-GAAP earnings are reported for informative purposes to accelerate price discovery and improve investment efficiency (Curtis et al. 2014; Bentley et al. 2018; Leung and Veenman 2018). Black et al. (2021) argue that non-GAAP metrics enhance both cross-period and cross-firm comparability more effectively than GAAP earnings, aligning closely with firm-specific regulatory burden patterns. I find evidence that managers strategically disclose informative non-GAAP earnings due to regulatory burdens.

This study employs a comprehensive dataset of manager-disclosed non-GAAP earnings metrics from Bentley et al. (2018) and firm-specific regulatory intensity measures developed using a machine-learning algorithm by Kalmenovitz (2022)[10] which captures aggregated compliance costs with all federal paperwork regulations across various dimensions. Utilizing a panel dataset comprising 61,059 firm-quarter observations spanning 2003 to 2019, the analysis employs three distinct metrics to operationalize regulatory intensity: RegIn Time (the cumulative hours expended by the public to comply with paperwork requirements, RegIn Responses (the total number of responses received), and RegIn Regulations (the count of active paperwork regulations), including time spent reading instructions, gathering information, and completing filings). I first examine how regulatory burden affects the frequency of non-GAAP exclusions. The results indicate a statistically significant positive association between regulatory intensity and the

[9] Non-GAAP earnings disclosures, compared to real and accrual earnings management, present a less costly alternative due to their reliance on ex post information, reduced regulatory oversight, and greater managerial discretion (Guggenmos et al. 2022; Hsu et al. 2022). Furthermore, non-GAAP disclosures are often viewed as a cost-effective substitute for accrual earnings management in achieving or surpassing analysts' expectations. This is because non-GAAP disclosures offer supplementary information not permitted by GAAP, which can be opportunistically used to influence external investors' expectations (Doyle et al. 2013a).

[10] Annually, adherence to federal paperwork requirements accounts for approximately 3.2% of total U.S. working hours—a proportion sufficiently substantial to prompt managerial cost–benefit analyses and responsive measures. A 2019 *Wall Street Journal* editorial underscores that regulatory and documentation demands, described as "excessively broad and questionable," threaten over 5 million small businesses due to their disproportionate administrative strain (WSJ, 2019).

propensity for non-GAAP reporting.[11] Subsequently, I investigate whether the findings align more closely with an informative or opportunistic perspective, aiming to accurately interpret management's intentions in the context of escalating regulatory intensity before drawing conclusions.

Second, I employ the novel "HQ GAAP" indicator from Davidson et al. (2020) and find that in firm-quarters characterized by high GAAP earnings quality (i.e., where firms have less need to provide non-GAAP metrics due to the high persistence of GAAP earnings), the likelihood of managers still subsequently reporting non-GAAP earnings is reduced.[12] Their approach addresses these limitations by distinguishing cases where exclusions are either non-aggressive or enhance decision usefulness for investors and creditors. Results indicate that managers affected by increased regulatory burden tend to be less aggressive in their non-GAAP reporting.

I then examine non-GAAP earnings quality using two distinct approaches. Following prior literature, I first use a commonly applied persistence test of non-GAAP exclusions (Doyle et al. 2003; Kolev et al. 2008; Feng et al. 2023; Frankel et al. 2011), and then assess the value relevance of non-GAAP exclusions (Collins et al. 1997; Feng et al. 2023). Specifically, I estimate the persistence of exclusions by regressing future operating income and future GAAP earnings on current-quarter non-GAAP earnings and exclusions, and estimate exclusions' value relevance by regressing stock price on current-quarter book value, non-GAAP earnings, and exclusions. I find that managers' total exclusions, recurring exclusions, and non-recurring exclusions are all less predictive of future earnings, suggesting an increase in the quality of their non-GAAP earnings exclusions.[13] Value relevance tests corroborate these results, as exclusions

[11] Specifically, I observe that a firm is 14.3 percent points more likely to report non-GAAP earnings in a given fiscal quarter with a 100-basis-point increase in a major proxy for regulatory intensity.

[12] Davidson et al. (2020) argue that the majority of indicators employed by leading journals do not consistently classify exclusions as low quality from the standpoint of decision usefulness for investors and creditors. They identify six common indicators that reveal scenarios where either (1) managers' exclusions are not aggressive, or (2) even when managers make aggressive exclusions, these actions still improve the decision usefulness of earnings for investors and creditors.

[13] Following Brown et al. (2011), I decompose total exclusions into below-the-line, special item, and managers' recurring item exclusions. Managers' recurring exclusions are further divided into: (1) analysts' recurring exclusions, which are agreed upon by both managers and analysts; and (2) managers' incremental recurring exclusions, which are not agreed upon. The improvements in quality are primarily observed in managers' recurring exclusions, traditionally

demonstrate stronger associations with equity valuations. Collectively, the evidence supports the interpretation that regulatory pressures incentivize managers to prioritize informative non-GAAP disclosures over opportunistic adjustments, thereby improving the transparency and decision relevance of reported metrics.

To further substantiate the underlying mechanism, I conduct several additional cross-sectional analyses. Davidson et al. (2020) demonstrate that compliance costs arising from regulatory burdens are negatively associated with expected cash flows and can impose financial constraints, forcing companies to prioritize compliance over other business activities. Consistent with this, I find that firms characterized by higher COGS, lower cash holdings, greater financial constraints, and weaker external monitoring tend to report more informative non-GAAP earnings. Additionally, I explore the moderating role of corporate transparency in shaping the relationship between regulatory intensity and the quality of non-GAAP reporting. Taken together, these findings suggest that regulatory burden motivates managers to strategically use non-GAAP reporting to convey valuable information when firms face internal and external constraints, rather than to obscure information from investors.[14]

In the robustness check, I conduct additional persistence analyses based on Equation 3 using the new indicator. I also replace the original regulatory intensity proxies with alternative measures—Reg_FRG, Topic_Disp, and Reg_Quantity—to validate the consistency of my results. Furthermore, I exploit two quasi-natural experimental settings, where as-if random variations in state-level and industry-level regulatory surges exogenously increase regulatory burdens (McLaughlin 2016). I find a positive association in both cases and confirm that the parallel trends assumption holds in the difference-in-differences (DiD)

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the most criticized category. The final decomposition results imply that both analysts and managers contribute to shaping informative non-GAAP earnings under regulatory burden, as both types of recurring exclusions—agreed and disagreed—reduce the predictive power for future earnings.

[14] When monitoring effectiveness is low, managers have exhausted their flexibility to manage accruals, and firms face financial constraints, managers tend to be more aggressive in their non-GAAP reporting (Black et al. 2017; Bradley et al. 2017). However, evidence from my results suggests that, despite strong motivations for aggressive objectives, managers still opt to report informative non-GAAP earnings in light of regulatory burdens. This indicates a strategic balance between aggressive reporting and the need to provide useful information to investors.

specifications. These findings alleviate concerns about the influence of unobserved common shocks or cross-firm heterogeneity, thereby supporting my hypothesis that surges in regulatory pressure lead to increased use of non-GAAP disclosures.

I explore alternative channels managers could adopt in response to regulatory pressure. Specifically, I examine whether managers engage in earnings management to manipulate investors' or voluntarily disclose management earnings forecasts to shape expectations. Empirical results show no significant association between these strategies and regulatory pressures, effectively ruling out these possibilities. I use the same regression model and replace dependent variable of managers' non-GAAP disclosure with analysts' non-GAAP disclosure, and find a positive association between regulatory intensity and analysts' propensity to disclose non-GAAP metrics. Analysts' dissemination of non-GAAP metrics fulfills investor demand for firm-specific, non-GAAP information in a manner inherently independent of managerial incentives (Christensen et al. 2019). This finding supports the broader argument that heightened regulatory scrutiny stimulates public demand for information, thereby promoting transparency and the dissemination of firm-specific core earnings disclosures through non-GAAP reporting.

I empirically conduct mediation analyses to examine whether increases in cost of goods sold (COGS) and selling, general, and administrative (SG&A) expenses mediate the relationship between regulatory intensity and the propensity for non-GAAP reporting. Using a path analysis framework, the findings reveal that regulatory intensity exerts both direct and indirect effects on the likelihood of non-GAAP disclosures through increased SG&A expenses, but not through COGS. The significance of SG&A likely arises from managers' treatment of regulatory-driven expenditures—such as information technology, software development, human capital investments, and strategic reorganization—as transitory costs. Consistent with prior research (Banker et al., 2011; Gu et al., 2023), these costs are typically aggregated into SG&A and subsequently reclassified as special items (e.g., non-recurring restructuring charges or non-cash goodwill impairments). Managers may exclude these items from non-GAAP metrics to better reflect core earnings. Conversely, COGS is generally perceived as inherently operational; excluding it from non-GAAP figures

could be interpreted by investors as opportunistic rather than informative. I address this concern by ruling out COGS as a mediating channel.

While this study incorporates a comprehensive set of control variables aligned with prior literature, it acknowledges that unobserved firm-specific fundamentals may still influence the findings. I re-estimate the likelihood and quality results using firm fixed effects to mitigate biases arising from time-invariant firm-level heterogeneity. Following Christensen et al (2019), I construct an alternative full sample for robustness checks.[15] My findings remain robust across lead–lag research specifications.

Taken together, this paper contributes to the existing literature from three significant perspectives. First, it enhances understanding of the positive exposure to the economics of regulation at the firm level, reflected in one unique type of voluntary disclosure (Bushee and Leuz 2005; Linck et al. 2009; Cazier et al. 2017). While previous studies have shown that accounting regulations can constrain aggressive non-GAAP earnings, they often acknowledge the confounding effects of concurrent events, which complicate the assessment of regulations' true impact (Bowen et al. 2005). Recent findings indicate that litigation risk can also serve as a deterrent to aggressive non-GAAP reporting (Cazier et al., 2024), and research in European contexts highlights how systematic variations in institutional background and economic factors influence non-GAAP reporting practices (Isidro and Marques 2015). My study provides a granular analysis of how firm-specific exposure to diverse regulatory challenges—beyond merely the quantity of regulations—affects managers' use of non-GAAP reporting.

Second, this study contributes to the literature on factors influencing non-GAAP reporting practices by emphasizing the significance of integrated regulatory impacts rather than focusing on isolated regulatory effects. As a highly visible form of voluntary disclosure, subject to particular scrutiny by the U.S. Congress and the SEC, non-GAAP reporting increasingly serves its core purpose within the existing regulatory

[15] I create two alternative comprehensive samples and perform robustness checks concerning the assignment of a zero frequency for non-GAAP disclosures in the dataset. Initially, I include all firms from 2003 to 2019, assigning a zero-disclosure frequency to firm-quarters without observed non-GAAP disclosures. Alternatively, I retain only those firm-quarters following the initial occurrence of a non-GAAP disclosure.

framework: presenting informative core earnings. My findings support recent studies suggesting that non-GAAP reporting is often used for informative purposes (Choi and Young 2015; Bentley et al. 2018; Black et al. 2018; Leung and Veenman 2018). More generally, my results suggest that escalating regulatory intensity collectively shapes a more robust regulatory environment, which in turn fosters increased adoption of non-GAAP reporting in a transparent and informative manner.

Third, this study offers valuable insights for regulators and practitioners by highlighting the positive externalities of regulation. The U.S. Securities and Exchange Commission (SEC) has long aimed to enhance the quality of non-GAAP disclosures. Beyond its initial Regulation G, recent amendments such as the SEC's Compliance and Disclosure Interpretations (CD&Is) and SEC comment letters have been shown to improve non-GAAP disclosure quality (Bond et al. 2017; Black and Christensen 2018). The findings of this study are particularly relevant to the SEC, providing evidence that increased regulatory stringency can protect investors and enhance financial reporting transparency. My results underscore the importance of regulatory intensity in improving non-GAAP reporting quality, thereby validating the SEC's ongoing efforts in this domain.

This study also acknowledges several limitations that warrant consideration. First, measurement errors represent an inherent challenge, as the regulatory intensity estimated through machine learning techniques may not perfectly correspond with non-GAAP reporting data due to potential discrepancies in models and parameters. Second, despite employing a range of fixed effects and control variables, the possibility of correlated omitted variables cannot be entirely mitigated. Consequently, a singular measure of regulatory intensity might not accurately capture the true regulatory burden experienced by various industries or regions, potentially impacting the generalizability of the study's findings.

2. Background and hypothesis development

2.1. Economic impact of regulatory intensity

Existing literature on the underlying model of regulation focuses on two overarching theories. The first is the traditional public interest theory, which posits that regulation is a response to market failures aimed at improving social welfare, addressing monopoly power, and overcoming asymmetric information (Demsetz 1974). Within this framework, the costs associated with regulation are viewed either as necessary investments for sustaining a robust economy or as encumbrances that should be minimized. In contrast, the private interest theory posits that regulation often serves as a tool for political entities, serving the interests of producers rather than consumers (Stigler 1971; Dal Bó 2006). According to this view, incumbent firms exert significant influence over regulators, while politicians and bureaucrats may derive personal benefits, such as bribes or future employment opportunities (Benmelech and Moskowitz 2010). Consequently, regulatory intensity can, to some extent, be interpreted as the bureaucratic costs imposed by federal agencies.

However, measurement errors, data imprecision, and standard methodological challenges—such as confounding effects and endogeneity—create significant obstacles to accurately assessing the synthesized costs and benefits of regulation. Theoretical frameworks suggest that regulation is inherently endogenous (Demsetz 1974), adapting in response to prevailing economic conditions (Peltzman 1976). This endogeneity complicates the disentangling of regulatory change effects, especially at the macro level, making research on regulatory costs and benefits challenging. Kalmenovitz (2023) highlights the difficulty in assessing regulatory intent. Consequently, the extent to which regulators prioritize the public good remains contentious, even when resulting regulations and enforcement are suboptimal. Moreover, regulation is not an exogenous imposition on firms; rather, it emerges from a dynamic, reciprocal interaction—similar to a cat-and-mouse game—where companies and regulators respond strategically to each other's moves. This ongoing interplay occurs through lobbying, comment letters, and meetings.

Kalmenovitz (2023) employs a multifaceted approach that captures various dimensions of regulatory burden. This study applies cosine similarity between corporate disclosures and regulation texts, combined

with machine learning classifiers, to determine the relevance of each regulation to specific companies.[16] The independent variables drawn from this approach include three dimensions: the number of active regulations, the number of regulatory responses required, and the time required for compliance. These metrics provide a comprehensive view of the regulatory landscape faced by firms.[17] Additionally, Kalmenovitz's study examines three key outcomes: the increase in expenses resulting from regulation, how companies manage the regulatory burden through lobbying and other tools, and the impact on firms' willingness to invest in new projects. To ensure robustness and mitigate potential biases, the analysis incorporates a rich set of firm-specific controls—such as total assets, the market-to-book ratio, Tobin's q, operating cash flow, and book leverage—and applies fixed effects for firms and time×industry interactions. Furthermore, independent variables are lagged by 1 period to address endogeneity concerns, and proxies for regulations are included to enhance the accuracy of the regulatory intensity measure. This thorough approach facilitates the isolation of regulatory burden effects on non-GAAP reporting practices.

2.2. Non-GAAP reporting and regulatory intensity

The voluntary disclosure of non-GAAP earnings in quarterly press releases—aimed at supplementing GAAP results for stakeholder clarity—confers considerable managerial discretion over the existence, content, and presentation of these metrics. While debated for nearly twenty years, regulators maintain that non-GAAP reporting can facilitate opportunistic behavior and mislead markets (Bhattacharya et al. 2004), prompting ongoing scrutiny of non-GAAP reporting practices.

[16] The description of each company uses 10-K reports from Bill McDonald's website, extracting Item 1 to capture the company's products, services, and legal environment, as recommended by the SEC. This information is aggregated across all years to create word collections. Similarly, each regulation is described using Form 83-I, including the regulation's name, abstract, and responsive agencies, focusing on the 25,950 regulations in effect between 1994 and 2020.

[17] This approach allows regulatory intensity to be traced back to specific regulations and federal agencies, providing a deeper insight into the origins of regulatory burden. The dataset is continuously updated, offering flexibility in measuring regulatory burden at various frequencies and for different subsets of regulations and agencies.

The current landscape for non-GAAP disclosures has evolved significantly, becoming more transparent due to mandatory reconciliations, SEC-imposed restrictions, and post-disclosure regulatory reviews. Despite persistent regulatory concerns, as highlighted in the SEC's 2010 and 2016 Compliance and Disclosure Interpretations (C&DIs), recent academic research indicates that non-GAAP reporting is largely motivated by managers' efforts to provide more informative insights to investors (Choi and Young 2015; Bentley et al. 2018; Black et al. 2018; Leung and Veenman 2018). It is increasingly evident that non-GAAP reporting serves as an effective communication tool for managers, potentially offering more informative insights than GAAP earnings. This trend presents an intriguing area for regulators and standard setters to explore further, particularly regarding how different regulatory frameworks influence non-GAAP reporting practices.

However, limited attention has been given to the impact of the intensity of complex regulations explicitly acknowledged in 8-K filings when firms present non-GAAP financial metrics. For example, some exclude expenses related to medical device regulations from their non-GAAP reporting. Firms also adjust their non-GAAP measures to enhance transparency and comparability when affected by state regulations or increased expenses linked to pre-clinical and clinical development programs. Specifically, Agilent Technologies, Inc. explicitly classifies expenses associated with transforming its processes to implement new regulations such as the EU's General Data Protection Regulation (GDPR), revenue recognition, and certain tax reporting requirements as special compliance costs, while its industry peers might or might not present this effect when providing non-GAAP EPS.

Additionally, one firm reported a 21% increase in adjusted EPS, excluding the effects of French tax regulation changes and restructuring charges, rising to $0.69 from $0.57 in the previous year.[18] Firms use reconciliation tables to align non-GAAP measures with GAAP standards, as required by the Securities and

[18] This is excerpted from AptarGroup, Inc.'s 4th quarter report. AptarGroup, Inc.'s Q4 report discloses two significant earnings adjustments: a $0.05 per share charge related to its European restructuring plan and a $0.10 per share impact from French tax regulations enacted retroactively during the quarter. The company's prior EPS guidance excluded both items. Excluding these adjustments, Q4 EPS was $0.69.

Exchange Commission (SEC). These adjustments often exclude one-off or unusual charges, such as litigation and regulatory reserves, and firms contend that adjusted earnings before interest, taxes, depreciation, and amortization (EBITDA) offer a clearer measure of profitability by removing the effects of financing decisions and tax regulations. Changes in Medicare reimbursement and regulations also impact GAAP reporting, leading firms to employ non-GAAP reporting to provide a more accurate representation of operational performance. Consequently, non-GAAP reporting provides a straightforward, understandable method for managers to adjust reported earnings to reflect what they consider the core operational outcomes, free from the transient effects of regulatory changes and one-off costs or benefits. This method is often seen as enhancing transparency and ensuring consistency in reporting, which can be particularly valuable in environments with fluctuating regulatory demands.

2.3. Hypothesis development

I investigate whether higher regulatory intensity influences managers' likelihood of disclosing non-GAAP performance metrics and whether it affects the quality of managers' public non-GAAP disclosures. As discussed earlier, although two primary theories differ in their assessment of the benefits of regulation,[19] regulatory burdens are ultimately costly to firms,[20] leading to increased expenditure on cost of goods sold (COGS) and sales, general, and administrative (SGA) expenses. Compliance costs affect firms' business strategies—such as increased lobbying and reduced hiring—through two mechanisms: heightened budget

[19] In the realm of regulation, two opposing theories emerge. The first, often termed the "public interest" theory, asserts that regulation serves to correct market failures and promote overall welfare. This view, dating back to Pigou (1938), identifies issues such as monopoly power, public goods, externalities, and information asymmetry as targets for regulatory intervention (Demsetz 1974; Melody 2016). Conversely, the "public choice" or "capture" theories depict regulation as a rent-seeking endeavor, where private actors pursue self-interest at the expense of the public good. Under this perspective, incumbent firms maintain their dominance, while politicians and bureaucrats seek personal gains through means such as bribes and job offers (Dal Bó 2006; Posner 1974; Tullock 1971; Stigler 1971).

[20] Mitch Francis, Chairman and CEO, stated: "Compliance costs under the Exchange Act and Sarbanes-Oxley have become prohibitive for small companies like Tix Corporation. After careful consideration, we believe relocating our stock listing to the OTCQX and deregistering our common stock will free up resources to drive growth and profitability. Deregistration will relieve us of financial burdens associated with Exchange Act and Sarbanes-Oxley compliance, SEC disclosure reviews, and administrative expenses tied to our NASDAQ listing and SEC reporting requirements."

constraints and legal uncertainty (Bernanke, 1983; Giroud and Mueller, 2017; Gulen and Ion, 2015; Julio and Yook, 2012).[21]

Theory suggests that managers' decision to provide non-GAAP performance metrics likely depends on trade-offs between the costs and benefits associated with this type of disclosure (e.g., Verrecchia, 1983). Managers are motivated to exclude value-reducing items through non-GAAP reporting, which often results in higher earnings per share (EPS) (Allee et al. 2007; Feng et al. 2023; Curtis et al. 2014; Choi et al. 2019). Furthermore, non-GAAP reporting provides managers with the flexibility and discretion to address the negative externalities of regulatory intensity while serving as an essential communication tool (Bentley et al., 2018; Chen, 2010; Christensen et al., 2021; Frankel et al., 2011).

On the other hand, non-GAAP earnings are arguably a more adaptable and presumably less costly avenue through which managers might aggressively mitigate regulatory costs by exercising discretion to inflate earnings, thereby influencing investors' perception of firm performance.[22] Non-GAAP reporting might be exploited to obfuscate investors, rather than clarify financial performance, when managers perceive a benefit from aggressive reporting and strategically exclude certain recurring items from COGS or SGA to offset the negative economic outcomes caused by regulatory burden costs. On the flip side, firm with high regulatory intensity may choose to provide less non-GAAP disclosure. Since prior research finds that litigation risk discourages non-GAAP reporting (Cazier et al. 2024), it is plausible that firms with high regulatory intensity may choose to provide less disclosure to avoid related risks. In summary, these

[21] Kalmenovitz (2023) indicates that adherence to regulatory compliance costs can lead to a reduction in firms' cash reserves and the initiation of additional debt issuance, thereby increasing leverage ratios. Firms with substantial cash holdings may possess greater operational and financial flexibility, potentially reducing their incentives to manipulate earnings using non-GAAP metrics to meet financial objectives or investor anticipations. However, in some cases, firms may use non-GAAP measures to highlight efficient cash utilization or to exclude non-recurring uses of cash they deem unrepresentative of ongoing operations. It is noteworthy that increasing leverage through debt placements may influence critical financial benchmarks such as earnings before interest, taxes, depreciation, and amortization (EBITDA). Companies may use non-GAAP adjustments to eliminate the effects of financing activities, such as interest expenses, to focus on operational profitability.

[22] This occurs as managers do not always explicitly provide non-GAAP performance metrics (Black et al. 2018; Bentley et al. 2018).

arguments suggest an increased inclination to disclose non-GAAP EPS figures. I state my first hypothesis as follows:

H1: Regulatory intensity has no association with the likelihood of non-GAAP reporting.

My prediction regarding the influence of regulatory intensity on non-GAAP reporting quality depends on how managers respond to two possible mechanisms that contribute to heavy compliance costs. Regulatory burden imposes substantial compliance costs on firms, potentially creating budgetary pressures that compel companies to prioritize compliance over other business activities (Giroud and Mueller, 2017). As firms allocate more resources to compliance activities, fewer may be available for other operational improvements or investments. This shift can lead to an environment in which non-GAAP adjustments become necessary to highlight the underlying operational performance that may be obscured by increased compliance costs. Managers might use non-GAAP measures to adjust for these compliance-related expenses, presenting a clearer picture of core operations to investors. Faced with the dual pressures of maintaining regulatory compliance and achieving performance targets, managers may be more inclined to engage in earnings management through non-GAAP adjustments. On the other hand, Black et al. (2021) find that approximately 30% of firms report a non-GAAP metric that is lower than the GAAP counterpart and that non-GAAP earnings are more comparable across peer firms.

Additionally, the proliferation of regulatory burdens amplifies legal uncertainty, prompting managers to defer projects until the uncertainty is resolved (Bernanke, 1983; Gulen and Ion, 2015; Julio and Yook, 2012; McDonald and Siegel, 1986). When firms delay projects due to regulatory uncertainties, their financial statements may be significantly affected, including through unusual or deferred expenses and revenues. Non-GAAP adjustments can be used to remove these temporary distortions, presenting what managers believe to be a more accurate reflection of ongoing operational performance. This can render non-GAAP reports more relevant and useful to investors seeking to assess the company's core operational health, excluding the noise introduced by deferred projects. However, with project deferrals, firms may also face pressures to meet earnings forecasts or maintain stock prices, potentially heightening the incentive for

earnings management. Managers might therefore use non-GAAP adjustments more aggressively to smooth earnings or adjust for costs and revenues associated with delayed projects.[23]

Given the balanced tension regarding this issue, I state my second hypothesis, in null form, as follows:[24]

H2: Regulatory intensity has no association with non-GAAP reporting quality.

3. Data and descriptive statistics

3.1. Sample selection

I employ Bentley et al.'s (2018) quarterly non-GAAP EPS data over the 2003–2020 period, based on their programmatic search and hand-collection. The Bentley database contains a substantial amount of missing quarterly data for non-GAAP EPS. Upon inquiry, Bentley indicated that this gap results from uncertainty regarding whether the non-GAAP metric was disclosed in those quarters. To mitigate sample selection bias caused by systematic data omissions, a viable approach involves classifying the GAAP quarters recorded by Compustat as not having non-GAAP earnings if they are absent from the Bentley database.

I obtain three regulatory intensity indexes from Kalmenovitz's publicly available dataset (from Kalmenovitz's website), covering the period from 1996 to 2019. To mitigate numerical issues caused by

[23] Black et al. (2017) observed that managers adjust their earnings management and non-GAAP reporting strategies based on pre-managed GAAP earnings levels and analysts' expectations. They noted that non-GAAP reporting is sometimes used as an alternative to earnings management. Furthermore, they found that firms are more likely to aggressively report non-GAAP EPS when they are unable to employ real or accruals earnings management, are limited by previous accrual-based earnings manipulations, and when their operational performance is weak.

[24] In their 8-K filings, some companies acknowledge the constraints or facilitative effects of regulatory pressure on their development. However, they often do not incorporate non-GAAP disclosures or explicitly outline the costs or benefits associated with regulation within these disclosures. Despite this, there is reason to believe that companies take the impact of regulation seriously. This is evident in the forward-looking statements section of 8-K filings, where most companies consistently express concerns about future regulatory environments, regulatory content, and associated costs. Consequently, it is challenging to determine in advance the motivations that influence companies' decisions to disclose non-GAAP information under regulatory pressure. It also remains uncertain whether regulatory pressure serves as a driving factor for managers to opt for non-GAAP disclosures.

large differences in variable magnitudes—such as computational errors and convergence problems—and to enhance interpretability by ensuring all variables have similar magnitudes, I scale the regulatory intensity indexes by a factor of 100. Additionally, I obtain financial statement data from Compustat, stock return data from the Center for Research in Security Prices (CRSP), institutional holdings data from the Thomson Reuters Institutional (13f) database, analyst coverage information from I/B/E/S, management earnings forecasts from I/B/E/S guidance, and audit information from Audit Analytics.

The final full sample consists of 61,059 firm-quarters from 1,757 unique companies. To mitigate the undue influence of outliers, I winsorize the top and bottom 1 percentiles of all continuous variables used in the regression analysis. My results for Hypotheses 1 and 2 remain unchanged when I exclusively use Bentley's original dataset.

3.2. Descriptive statistics

Figure 3 shows the frequency of non-GAAP disclosures and regulatory intensity across the sample period from 2003 to 2019. The frequency of non-GAAP reporting has steadily increased since 2003, rising from approximately 15% in 2003 to a peak of 40% in 2018, consistent with prior non-GAAP research (Bentley et al. 2018; Christensen et al. 2019; Christensen et al. 2021).[25] The three regulatory intensity indexes displayed relative stability prior to 2008, followed by a consistent increase, exhibiting a pattern similar to that of non-GAAP disclosure frequency.

Table 1 presents descriptive statistics for main variables used in this study. In Panel A, managers, on average, disclose non-GAAP earnings in 31% of firm-quarters, and the average value of the three regulatory indexes is approximately 1 across firm-quarters. When managers report non-GAAP earnings, the mean non-GAAP EPS is 0.59. Additionally, managers exclude an average of 21 cents per share (TOTALEXCL) from GAAP

[25] For each quarterly earnings announcement, I identify the year of disclosure and then aggregate the frequency on an annual basis for plotting.

earnings to derive non-GAAP EPS. The average recurring exclusion (MGR_EXCRECUR) is 0.11, while the values for non-recurring exclusions—including special items (SPECIALEXCL) and below-the-line items (BELOWLINE)—are 0.10 and 0.00, respectively. The distributions of the control variables in Panel B are consistent with those reported in prior literature.

4 Research design and empirical analyses

4.1. Non-GAAP disclosures frequency

To examine how regulatory intensity affects the frequency of non-GAAP disclosures, I estimate the following probit model:

$$Prob(NG_{i,t}) = \alpha + \beta Reg_{i,t} + \gamma Controls_{i,t} + Industry\ Fixed\ Effect + Quarter\ Fixed\ Effect + \varepsilon_{i,t} \quad (1)$$

Where the dependent variable $NG_{i,t}$ equals 1 if the firm provides a non-GAAP earnings figure in the current quarter, and 0 otherwise. $Regulatory\_intensity_{i,t}$ is proxied by four different measures of regulatory intensity at the firm level: *RegIn_Regulations* (the number of active paperwork regulations), *RegIn_Responses* (the total number of responses received), and *RegIn_Time* (the total hours invested by the public to comply with paperwork regulations). For example, hiring a primarily focuses on the first three measures and all my empirical analysis is based on the three measures.

CONTROLS are consistent with prior non-GAAP literature and include firm size, stock returns, leverage, the book-to-market ratio, growth, management guidance, return on assets, earnings variability, the number of analysts following a firm, accruals, the ratio of the absolute value of special items, Big N audit, institutional ownership, and whether the firm reports a loss. Detailed definitions for all control variables are provided in Appendix A.

I include either industry fixed effects or firm fixed effects and fiscal year-quarter fixed effects to address time-invariant industry-specific or firm-specific unobserved heterogeneity over time, clustering standard errors at the firm level. I also run regressions without controls as an additional check to avoid issues with bad controls. To circumvent the incidental parameters problem that biases probit models incorporating multi-dimensional fixed effects, I instead utilize OLS regressions for all estimations.

4.2 A novel approach to testing the aggressiveness of non-GAAP reporting

To examine the aggressiveness of non-GAAP earnings, I apply an indicator, HQ GAAP < 5 cents,[26] [27] [28] equal to 1 for firm-quarters in which: (1) the firm discloses non-GAAP earnings; and (2) the absolute value of the GAAP surprise (i.e., actual GAAP earnings minus the GAAP earnings analyst consensus forecast) is 5 cents per share or less. The data summary shows that 30% and 20% of GAAP surprises are less than or equal to 5 and 3 cent(s) per share, respectively, consistent with the average percentages reported in Davidson et al. (2020).

[26] *HQ_GAAP* possesses several key features. It is theoretically motivated by managers' justification for providing non-GAAP disclosures in response to low-quality GAAP earnings. It can be measured at the firm-quarter level without requiring overlapping lagged data, thereby avoiding time-series dependence and preserving sample size. HQ GAAP requires minimal data, avoids look-ahead bias, and is based on a continuous measure (GAAP surprise), making it adaptable for identifying exclusions across the quality spectrum. It can detect aggressive non-GAAP reporting by capturing both the exclusion of persistent earnings components and income shifting. Importantly, HQ GAAP does not require estimation, avoiding biases associated with parameter estimates, regression residuals, or predicted values from first-stage regressions, which can lead to Type I or Type II errors (Byzalov and Basu 2024). This feature ensures more reliable inferences without complex functional forms or proprietary estimations.

[27] Despite its advantages, HQ GAAP has several limitations. First, it focuses on decision usefulness for capital market participants and may not capture other managerial incentives, such as compensation-driven benchmark beating. Second, GAAP earnings consist of heterogeneous components, hence high-quality GAAP earnings do not guarantee that all components are high quality. Third, HQ GAAP is based on earnings persistence, but it is unclear whether persistent earnings components excluded from summaries, such as special items or noncash items, correlate with future operating income or cash flow. Additionally, high persistence does not necessarily imply value or credit relevance. Finally, HQ GAAP may not effectively identify low-quality exclusions when they are mixed with high-quality ones, as it might fail to flag persistent exclusions if the GAAP surprise is not small.

[28] This measure does not depend on managers' incentives to aggressively disclose non-GAAP figures to meet earnings benchmarks. Instead, it is predicated on the absence of incentives to alter GAAP earnings for improving valuation or credit usefulness. This focus ensures the measure captures decision usefulness for capital market participants rather than being influenced by other managerial incentives, such as compensation-driven efforts to exceed benchmarks.

Davidson et al. (2020) identify at least two reasons why exclusions noted by previous indicators are not necessarily of low quality from the perspective of decision usefulness to investors and creditors.[29] First, managers may exclude certain earnings components to provide clearer information, which can help them surpass a benchmark. For instance, transitory items—often considered valid exclusions by researchers—might cause GAAP earnings to fall below a benchmark, whereas non-GAAP earnings, excluding these items, could exceed it (Curtis et al. 2014). Therefore, non-aggressive exclusions intended to inform users may lead to the legitimate surpassing of a benchmark. Second, even aggressive exclusions can result in non-GAAP figures that are more useful for decision-making than GAAP earnings. Previous research suggests that GAAP earnings are more informative for performance measurement than cash flows, despite potential managerial bias in accruals (Dechow 1994). Similarly, a non-GAAP metric might be more useful than its GAAP counterpart, even if it includes aggressive exclusions. I estimate the following regression using a probit model:

$$Prob\left(HQ_{GAAP\,i,t}\right) = \alpha + \beta Regulatory_{intensity_{i,t}} + \gamma Controls_{i,t} + Industry\ Fixed\ Effect + Quarter\ Fixed\ Effect + \varepsilon_{i,t} \quad (2)$$

In Equation 2, I employ the same control variables as in Equation 1 and estimate the probit model, incorporating industry and fiscal year-quarter fixed effects, with standard errors clustered at the firm level. To verify that my results are robust to the 5-cent threshold, I also apply a 3-cent threshold (HQ GAAP < 3 cents), as suggested by Davidson et al. (2020).

[29] Indicators identified in previous research include the following: (1) meeting or exceeding the consensus analyst forecast (Meet/Beat Consensus); (2) avoiding the reporting of a loss (Avoid Loss); (3) surpassing analyst-defined non-GAAP earnings (Exceed Analyst); (4) excluding recurring items (Other Excl); (5) avoiding the reporting of an earnings decline (Avoid Decline); and (6) surpassing GAAP earnings (Exceed GAAP).

4.3. The quality of non-GAAP earnings

Next, I use two different sets of tests to explore the effect of regulatory intensity on the quality of non-GAAP reporting (H2). The first set of tests focuses on the predictive power of non-GAAP exclusions (namely, the persistence of non-GAAP exclusions), considering the overall regulatory burden. Consistent with Brown et al. (2011), Frankel et al. (2011), Abdel-Meguid (2021), and Feng et al. (2023), I estimate the following OLS regression models:

$$Future\ \ OI/GAAP_{i,t+1} = \alpha + \beta_1 NonGAAPEPS_{i,t} + \beta_2 \boldsymbol{TotalExclusions_{i,t}} + \beta_3 Regulation\_metrics_{i,t} + \delta_1 NonGAAPEPS_{i,t} \times Regulation\_metrics_{i,t} + \delta_2 \boldsymbol{TotalExclusions_{i,t}} \times \boldsymbol{Regulation\_metrics_{i,t}} + Controls_{i,t} + +Industry\ Fixed\ Effect + Quarter\ Fixed\ Effect + \varepsilon_{i,t} \quad (3)$$

$$Future\ \ OI/GAAP_{i,t+1} = \alpha + \beta_1 NonGAAPEPS_{i,t} + \beta_2 \mathrm{BELOWLINE}_{\mathrm{EXC\ t}} + \beta_3 SPECIAL_{EXC\ t} + \boldsymbol{\beta_4 MGR\_EXCRECUR_t} + \beta_5 Regulation\_metrics_{i,t} + \delta_1 NonGAAPEPS_{i,t} \times Regulation\_metrics_{i,t} + \delta_2 \mathrm{BELOWLINE}_{\mathrm{EXC\ t}} \times Regulation\_metrics_{i,t} + \delta_3 SPECIAL_{EXC\ t} \times Regulation\_metrics_{i,t} + \boldsymbol{\delta_4 MGR\_EXCRECUR_t} \times Regulation\_metrics_{\boldsymbol{i,t}} + Controls_{i,t} + +Industry\ Fixed\ Effect + Quarter\ Fixed\ Effect + \varepsilon_{i,t} \quad (4)$$

Where the dependent variable is either *Future Operating Income* or *Future GAAP Earnings from Operations*. *Future Operating Income* denotes 1-period-ahead (t+1) earnings per share from operations, and *Future GAAP Earnings from Operations* denotes 1-period-ahead (t+1) GAAP earnings per share from operations. *EPSNG* represents non-GAAP EPS based on both hand-collected and programmatically obtained data. I estimate total exclusions per share, *TOTALEXCL*; managers' total recurring exclusions per share, *MGR_EXCRECUR*; below-the-line exclusions per share, *BELOWLINE*; and special item exclusions, *SPECIALEXCL*. The components derived from the further decomposition of *TOTALEXCL* provide additional information for understanding how managers and analysts adjust non-GAAP reporting quality in response to regulatory intensity. I include industry fixed effects and fiscal year-quarter fixed effects, and cluster standard errors at the firm level, consistent with Equation 1.

Building on the concepts introduced by Collins et al. (1997) and the widely used framework by Ohlson' (1995), my second set of tests evaluates the quality of non-GAAP exclusions in terms of their value

relevance. Value relevance encompasses both the relevance and reliability of accounting figures (Barth et al., 2001), which are crucial attributes of decision usefulness and widely recognized indicators of accounting quality. I estimate the following OLS regression, using the model specification of Feng et al. (2023):

$$Price_{i,t} = \alpha + \beta_1 NonGAAPEPS_{i,t} + \beta_2 \boldsymbol{TotalExclusions_{i,t}} + \beta_3 Regulation\_metrics_{i,t} + \delta_1 NonGAAPEPS_{i,t} \times Regulation\_metrics_{i,t} + \delta_2 \boldsymbol{TotalExclusions_{i,t}} \times \boldsymbol{Regulation\_metrics_{i,t}} + Controls_{i,t} + \varepsilon_{i,t} \quad (5)$$

where *Price* is the fiscal-quarter closing price, adjusted for stock splits and stock dividends, for firm i at quarter t; and *BV* is common equity per share for firm i at quarter t. I expect book value to be positively associated with earnings in relation to price, consistent with prior literature that measures value relevance through this association (Collins et al. 1997). Similarly, if non-GAAP exclusions are entirely transitory, I expect them to lack predictive power for future earnings and, accordingly, to exhibit no value relevance. As with Equation 1, I incorporate industry and fiscal year-quarter fixed effects, and cluster standard errors at the firm level.

5. Main results

5.1. Regulatory intensity and non-GAAP reporting frequency

Table 2 presents the estimation results from Equation 1. The coefficients on *RegIn_Time, RegIn_Responses*, and *RegIn_Reg* are all positive and statistically significant across columns 1 to 3 when including industry and year-quarter fixed effects. For instance, the coefficient on *RegIn_Time* is significantly positive ($\beta = 0.233, z - statistic = 1.71$). The marginal effect suggests that, considering regulatory intensity, firms are approximately 6.10 percentage points more likely to report non-GAAP earnings in a given fiscal quarter with a 100-basis-point increase in *RegIn_Time*. The results are quantitatively stronger and more significant across the three measures when firm fixed effects are included

using the OLS specification. Taken together, these findings indicate that regulatory intensity is positively associated with managers' non-GAAP reporting choices, after controlling for other well-known factors of non-GAAP reporting.

5.2. Results on aggressiveness and quality of non-GAAP EPS

Table 3 presents the results from Equation 2 and indicates that both RegIn_Tim and RegIn_Regulations are negatively associated with a GAAP surprise of less than 5 cents (HQ GAAP < 5 cents). This indicates regulatory intensity significantly deters managers from reporting potentially low-quality non-GAAP earnings when GAAP earnings quality is sufficiently high, as indicated by small GAAP earnings surprises, which imply high GAAP earnings persistence (Freeman and Tse 1992) and thus high-quality GAAP earnings (Subramanyam 1996). In other words, under increased regulatory burden, managers are less aggressive in their non-GAAP reporting decisions. To ensure the results are not sensitive to the 5% threshold, I also conduct the tests using a 3% threshold (HQ GAAP < 3 cents), and the findings remain consistent and robust.

Next, I present the OLS regression results for Equations 3 and 4 in Tables 4 and 5. To facilitate interpretation, I do not deflate the per-share values of the various earnings exclusions. However, the conclusions remain consistent when these variables are deflated by either stock price or total assets per share. For Equation 3, I use Future GAAP and Future Operating Income as dependent variables to test H2. With these two dependent variables, the coefficient on *TOTALEXCL* is, on average, statistically negative. Additionally, I find a positive and statistically significant coefficient on the interaction between *TOTALEXCL* and the three regulatory intensity metrics. These results suggest that non-GAAP exclusions are less persistent (i.e., of higher quality) when the overall regulatory burden is considered.

To identify exclusions likely reflecting aggressive managerial actions, I decompose *TOTALEXCL* into its subcomponents—*MGR_EXCRECUR*, *BELOWLINE*, and *SPECIALEXCL*—to estimate Equation 4. The results, presented in Table 6, focus on *MGR_EXCRECUR*, which indicates whether managers opportunistically exclude recurring items from GAAP earnings. Consistent with prior literature, when

regressing Future Operating Income or Future GAAP Earnings from Operations on two regulatory intensity proxies, I find that the coefficient on *MGR_EXCRECUR* is significantly negative, suggesting these exclusions are typically recurring expenses. Additionally, the coefficient on the interaction between *MGR_EXCRECUR* and the regulatory intensity metrics is positive and significant, indicating that, beyond special items and below-the-line items, the exclusions made by managers are of higher quality in the context of regulatory intensity. These results are consistent across all three measures and remain quantitatively similar when firm fixed effects are included in the analysis.

Extending the analysis of the link between regulatory intensity and the quality of voluntary non-GAAP disclosures, Table 6 presents value relevance tests of non-GAAP reporting. The regression model includes price as the dependent variable and book value, non-GAAP earnings, total exclusions (*TOTALEXCL*), and interaction terms with regulatory intensity metrics as independent variables. The results indicate that book value (*BV*) and non-GAAP earnings (*EPSNG*) are significantly value-relevant for firms, as shown by coefficients $\beta1=0.0451$ and $\beta1=0.0473$ in columns 1 and 2, respectively, of Equation 5.

In the context of regulatory intensity, firms increase the value relevance of total exclusions, suggesting that these exclusions reflect nonrecurring items, consistent with Collins et al.'s (1997) findings. Specifically, I observe that total exclusions are value-relevant for firms without considering regulatory burden (e.g., $\beta2=0.199$ in column 1 and $\beta2=0.197$ in column 2). However, the additional impact of regulatory burden renders these exclusions uninformative (e.g., $\beta3=-0.116$ in column 1 and $\beta4=-0.109$ in column 2), indicating that they are more transitory and less persistent when regulatory burden is considered. Further tests show that the sum of these coefficients is not statistically different from 0, implying that managers' total exclusions for firms considering regulatory burden lack value relevance. These results remain robust when including firm fixed effects and year-quarter fixed effects. Overall, the persistence and value relevance tests suggest that the relationship between regulatory intensity and managers' pro forma disclosure decisions is at least partly driven by informative motives, consistent with the public interest theory regarding the implications of regulation (Pigou 2017; Melody 2016).

5.3. Cross-sectional tests

As this paper finds that firms subject to greater regulatory pressure tend to issue more non-GAAP disclosures—and that these exclusions are of higher quality and informativeness—I next examine certain mechanisms to better understand why regulatory intensity positively influences firms' non-GAAP reporting and enhances the informativeness of these disclosures.

5.3.1. Consequences of rising compliance costs

Companies facing substantial regulatory burdens allocate a significantly larger proportion of their cost of goods sold (COGS) to compliance-related expenses. If the hypothesized mechanism holds, managers under heightened COGS pressure are more likely to adopt higher-quality non-GAAP reporting to transparently communicate operational performance, rather than resorting to lower-quality disclosures to mislead investors.

The study further reveals that firms reduce cash holdings to offset the increasing compliance costs driven by regulatory intensity. Companies with weaker cash flows exhibit stronger incentives to employ non-GAAP metrics to signal costs that are unrelated to core production activities, thereby providing context for their financial constraints.

Kalmenovitz (2023) demonstrates that regulatory uncertainty disproportionately reduces capital investment among financially constrained firms, which lack operational slack and must reallocate resources to compliance (Hadlock and Pierce 2010). This fiscal strain suggests that such firms face heightened pressure to mitigate information asymmetry. Consequently, managers in constrained firms—particularly under regulatory scrutiny—are predicted to voluntarily enhance non-GAAP disclosures. These disclosures may address information gaps regarding financial constraints (Healy and Palepu, 2001), aligning with incentive signaling theory (Ross, 1979), which asserts that managers proactively reduce asymmetries to signal credibility.

The empirical results in Tables 7, 8, and 9 support this framework. The interaction between TOTALEXCL and regulatory intensity metrics is consistently positive, reinforcing the prediction that managers improve non-GAAP reporting quality when confronted with rising compliance costs, cash flow shortages, and financial constraints. This strategic disclosure aims to deliver informative signals to investors rather than obscure performance.

5.3.2. Corporate transparency

This study subsequently examines the moderating role of corporate transparency in shaping the relationship between regulatory intensity and non-GAAP reporting quality. If regulatory constraints function as behavioral deterrents that limit managerial opportunism in non-GAAP disclosures, external monitoring mechanisms may serve as substitutes for regulatory oversight. This substitution effect implies that the efficacy of regulatory intensity in enhancing non-GAAP reporting quality should be more evident in environments characterized by weaker external monitoring. To test this proposition, two complementary dimensions of corporate transparency are utilized as proxies for external monitoring: institutional ownership concentration and financial reporting opacity.

The monitoring role of institutional investors in curbing aggressive earnings disclosures is well-documented (Ajinkya et al. 2005), as their fiduciary responsibilities incentivize rigorous scrutiny of voluntary disclosures. Conversely, financial reporting opacity reflects deficiencies in corporate transparency, necessitating heightened external audit efforts to detect material misstatements (Hutton et al. 2009). Post-SOX regulatory enhancements have notably been shown to constrain opaque reporting practices, underscoring the interplay between regulation and monitoring.

Table 10 presents cross-sectional analyses stratified by median values of these monitoring proxies. The empirical results reveal a significant concentration of regulatory effects in firms with below-median institutional ownership and above-median reporting opacity. Specifically, the interaction term between TOTALEXCL and the regulatory intensity metrics in Panels A and B exhibits statistically positive coefficients ($p < 0.05$) in low-monitoring subgroups, whereas coefficients remain insignificant in high-

monitoring counterparts. This pattern persists across both disclosure quality metrics examined, as detailed in Table 10. Collectively, these findings substantiate the hypothesis that regulatory interventions exert stronger corrective effects on non-GAAP reporting practices when intrinsic monitoring mechanisms are deficient.

6. Additional robustness tests

Additionally, a comprehensive series of sensitivity analyses was conducted to evaluate the robustness of the findings.

6.1. Persistence tests conditioned by new indicator

HQ_GAAP more effectively identifies exclusions that map into future operating earnings and cash flows, improving the differentiation between low- and high-quality non-GAAP earnings. Additional persistence analyses, estimated using Equation (3) and partitioned by the **HQ_GAAP** indicator variable, examine the coefficients for ***TOTALEXCL*** and ***TOTALEXCL* × *RegIn_Time***. Table 11 reports a negative coefficient on ***TOTALEXCL*** and a positive coefficient on ***TOTALEXCL* × *RegIn_Time*** when ***HQ_GAAP* = 1**, indicating that exclusions under this condition exhibit lower persistence for future firm performance and thus reflect higher quality. This finding aligns with Davidson et al. (2025), who posit that managers' aggressive exclusions, on average, still enhance the decision usefulness of earnings. Collectively, the aggressiveness tests suggest that regulatory pressure reduces the likelihood of aggressive exclusions. Furthermore, when exclusions appear aggressive, they convey information managers perceive as improving the informativeness of earnings for investors. These results remain robust to other measures of regulatory intensity (untabulated analyses; see Online Appendix).

6.2. Alternative measures of independent variables

To assess the robustness of Equation (1) to alternative measures of regulatory intensity, I employ a novel suite of firm-level regulatory proxies developed by Kalmenovitz et al. (2025), derived from

comprehensive Federal Register data. These proxies include: Reg_FRG, capturing regulatory fragmentation as the duplicative oversight of a single topic by multiple federal agencies—a direct measure of overlapping regulatory burden; Topic_Disp, quantifying the dispersion of topics addressed in a firm's annual reports; and Reg_Quantity, reflecting the sheer volume of applicable regulations. Kalmenovitz et al. (2025) utilize latent Dirichlet allocation (LDA) to classify government activities into 100 distinct topics and compute inter-agency topic fragmentation. Results from supplementary analyses presented in Table 12 demonstrate that the positive association between regulatory burden and non-GAAP disclosure propensity, as hypothesized, is specifically driven by regulatory fragmentation (Column 1). In contrast, neither topic dispersion (Column 2) nor regulatory quantity (Column 3) exhibits statistically significant associations with non-GAAP reporting likelihood. This differential effect aligns with the conceptual distinction that while high topic dispersion may indicate a broad regulatory scope for a firm, it does not inherently signify inconsistent or duplicative regulations imposing tangible burden. Similarly, a high volume of regulations (Reg_Quantity) may reflect necessary industry-specific requirements rather than excessive burden. Collectively, these findings provide robust empirical support for the proposition that the perceived regulatory burden, most accurately captured by fragmentation (Reg_FRG), is a primary driver of increased managerial reliance on non-GAAP disclosures.

6.3. Difference-in-difference estimation

On April 16, 2012, the Environmental Protection Agency (EPA) unexpectedly announced the formal implementation of stringent regulatory restrictions targeting the most regulated industry, namely the petroleum and coal products manufacturing industry, which is subjected to an average of 54,089 regulatory restriction words, thereby significantly heightening regulatory pressure on this sector (McLaughlin 2016). Similarly, the California Consumer Privacy Act (CCPA) was enacted into law on June 28, 2018. The CCPA is designed to ensure a minimum level of privacy rights for California consumers, thereby increasing non-operational compliance costs for local businesses. These two regulatory events, which separately intensified burdens at the industry and state levels, serve as the basis for constructing two exogenous quasi-natural

experiments. In my analysis, I identify treatment firms in the affected states and industries while retaining firms not impacted by these exogenous regulatory shocks. I then employ propensity score matching (PSM) with kernel PSM matching to construct the matched control firms.

$$Prob(NG_{i,t}) = Treat\_Post_{i,t} + Control_{i,t} + Quarter\ Fixed\ Effect + Firm\ fixed\ Effects + \varepsilon_{i,t} \quad (6)$$

I then construct a generalized DiD analysis in Model 6, including both firm fixed effects and year-quarter fixed effects. The coefficients are both positive and significant for both experiments. To further substantiate the parallel trends assumption, I incorporate indicators PRE(-4) through PRE(-1) and their interactions with the treatment variable TREAT (Roberts and Whited 2013). PRE(-4) denotes the indicator for the 4th quarter preceding the shock quarter, with PRE(-3) to PRE(-1) defined similarly. Additionally, POST indicators 1 through 4 are included. In Table 13, the lack of statistical significance in the PRE indicators, coupled with the positive and significant results for all POST indicators, provides robust support for the parallel trends assumption.

6.4. Possible channels and analysts' issuance of non-GAAP

I further examine alternative channels through which managers might mitigate the adverse effects of regulatory pressure, including voluntary disclosure of forecast guidance and accrual-based earnings management. As presented in Table 14 in column 1 to 3 (Panel A), the empirical results reveal no statistically significant association between regulatory pressure and these managerial strategies. Unlike non-GAAP reporting, which serves primarily as a retrospective, flexible tool to reframe past performance, management forecasts are inherently prospective commitments laden with uncertainty. Increased regulatory scrutiny substantially elevates perceived litigation and reputational costs associated with potential forecast errors, acting as a strong deterrent (Cheng et al. 2013). This deterrent effect, however, may be counterbalanced by firms facing greater regulatory pressure simultaneously having stronger incentives to reduce information asymmetry and preempt regulatory concerns through enhanced forward-looking

transparency (Houston et al. 2019). Consequently, while regulatory intensity demonstrably increases the use of non-GAAP metrics—leveraging their flexibility to navigate complex reporting environments and manage impressions of core performance—its net effect on forecast guidance is ambiguous, as the powerful disincentive created by litigation risk largely offsets any potential increase in the demand for prospective disclosure (Cao and Narayanamoorthy 2011), resulting in an overall non-significant association.

Heightened regulatory pressure may incentivize managers to prioritize less costly forms of earnings manipulation, such as accrual-based methods or non-GAAP reporting adjustments to meet performance targets while mitigating regulatory risks (Badertscher 2011). However, the results presented in Columns (4) to (6) indicate no significant association between regulatory intensity and accrual-based earnings management. This null finding suggests limited support for the proposition that managers systematically substitute accrual-based earnings management with alternative methods in direct response to increased regulatory scrutiny.

Analysts' dissemination of non-GAAP metrics fulfills investor demand for firm-specific, non-GAAP information in a manner inherently independent of managerial incentives (Christensen et al. 2019). In in table 14 panel B, consistent with Christensen et al. (2019), I use the same regression model and replace dependent variable of managers' non-GAAP disclosure with analysts' non-GAAP disclosure, and find a positive association between regulatory intensity and analysts' propensity to disclose non-GAAP metrics. This finding supports the broader argument that heightened regulatory scrutiny stimulates public demand for information, thereby promoting transparency and the dissemination of firm-specific core earnings disclosures through non-GAAP reporting.

6.5. Path analysis

I further investigate whether increases in cost of goods sold (COGS) and selling, general, and administrative (SG&A) expenses mediate the relationship between regulatory intensity and the propensity for non-GAAP reporting. Using mediation analysis (Sobel 1982) and *RegIn_Time* as dependent

variable, Table 15 presents the results, including *z*-statistics and the proportion of mediated effects. The analysis reveals that SG&A expenses significantly mediate this relationship (mediated effect = 9.7%; p=0.042), whereas COGS exhibits no significant mediating role (Sobel z =0.0841, p =0.400). This suggests that heightened regulatory intensity amplifies non-GAAP reporting likelihood primarily through increased SG&A expenses, not COGS. The results remain consistent using other regulatory proxies.

The significance of SG&A may stem from managers' treatment of regulatory-driven expenditures—such as information technology, software development, human capital investments, and strategic reorganization—as transitory costs. Consistent with prior research (Banker et al. 2011; Gu et al. 2023), these costs are typically aggregated into SG&A and subsequently reclassified as special items (e.g., non-recurring restructuring charges or non-cash goodwill impairments). Managers may thus exclude them from non-GAAP metrics to better reflect core earnings. Conversely, COGS is likely perceived as inherently operational; its exclusion from non-GAAP figures could signal opportunism to investors rather than improve informational value. I eliminate this concern by ruling out COGS as potential channel.

6.6. Other robustness

To mitigate redundancy, I utilize a single regulatory intensity proxy, RegIn_Time, across most of cross-sectional analyses. Repeating these tests with two alternative proxies yields largely consistent results; these findings appear in the Online Appendix. Despite incorporating numerous control variables as suggested by prior research, a key endogeneity concern remains: correlated, omitted firm-specific fundamentals such as regulatory enforcement and managerial characteristics may influence the results. To address this, I re-estimate the likelihood and quality results using firm fixed effects, which account for time-invariant firm-specific characteristics. Following Christensen et al. (2019), I construct two alternative full samples for robustness checks related to assigning a zero frequency of non-GAAP disclosure. The first includes all firms from 2003 to 2019, assigning a zero-disclosure frequency to any firm-quarter without a non-GAAP disclosure. The second includes all firm-quarters following the initial occurrence of a non-

GAAP disclosure. Lastly, the results are robust to lead–lag research specifications, which help mitigate potential endogeneity concerns. The results for frequency and quality are consistent across these alternative samples and lead–lag model specifications, as reported in untabulated tables.

7. Conclusion

This study systematically examines the relationship between regulatory intensity and corporate non-GAAP reporting practices. Using advanced econometric methodologies, the analysis demonstrates that heightened regulatory scrutiny has a statistically significant positive influence on both the frequency and quality of non-GAAP disclosures. Contrary to prevailing assumptions that escalating compliance costs incentivize managerial opportunism, the results indicate that firms under stringent regulatory oversight exhibit greater adherence to disclosure transparency, thereby enhancing the informativeness and reliability of non-GAAP metrics. These findings challenge conventional wisdom by positing that regulatory pressures function as a disciplinary mechanism rather than a mere compliance burden.

Cross-sectional analyses further identify firm-specific heterogeneities in regulatory responsiveness. Firms characterized by elevated cost-of-goods-sold ratios, constrained cash flows, and acute financial distress demonstrate heightened sensitivity to regulatory intensity, strategically opting for enhanced non-GAAP disclosure practices to counteract profitability distortions caused by compliance expenditures. This behavioral pattern substantiates the conceptualization of regulation as a dual-force mechanism—imposing direct costs while simultaneously motivating strategic transparency.

Moreover, the study explores the moderating effects of external monitoring mechanisms, revealing that the impact of regulatory intensity on non-GAAP reporting is more pronounced in firms with weaker external monitoring and corporate transparency. Through the integration of cross-sectional analyses, the study provides robust evidence supporting the public interest theory framework. Regulatory intensity not

only imposes compliance costs but also serves as a catalyst for managers to provide value-relevant information, thereby reducing information asymmetry and fostering a more transparent market environment.

This study makes significant contributions to the literature on the unintended consequences of regulation. It diverges from singular-focus examinations (e.g., Regulation G studies) by conceptualizing regulatory intensity as a multidimensional construct that reflects cumulative policy impacts. Moreover, it introduces a contingency framework that links disclosure strategies to firm-specific resource constraints and institutional monitoring gaps.

While methodological limitations warrant the necessity for cautious interpretation—including potential measurement error in regulatory exposure proxies derived from parametric modeling assumptions and limited generalizability due to cross-industry regulatory heterogeneity—future investigations could explore dynamic measures of regulatory burden and international regulatory ecologies.

Overall, these findings have critical policy implications. They advocate for adaptive regulatory structures that align compliance mandates with transparency incentives, recognizing that judicious regulatory pressure can align managerial disclosure incentives with investor protection objectives. The study underscores the importance of a comprehensive regulatory framework that not only enforces compliance but also promotes transparency and accountability in financial reporting. The findings advocate for continued vigilance and adaptive regulatory policies to ensure that the evolving corporate disclosure landscape aligns with the interests of investors and the broader market.

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APPENDIX A

Variable of definitions

Variable Name	Definition
NG	Indicator variable that equals to one if a non-GAAP EPS number is issued in the firm-quarter; zero otherwise.
RegIn_Reg	Number of active paperwork regulations.
RegIn_Responses	Total number of responses received ("how much paperwork").
RegIn_Time	Total hours invested by the public to comply with paperwork regulations. It includes the time it takes to read the instructions, collect the information, and file the paperwork with the relevant agency.
EPSNG	The manager adjusted (non-GAAP) diluted EPS.
TOTALEXCL	Managers' total exclusions per share (EPSNG – EPSAXI).
MGR_EXCRECUR	Managers' total recurring exclusions per share (EPSNG – EPSGAAPOP).
SPECIALEXCL	Special items exclusions per share (EPSGAAPOP – EPSBXI).
BELOWLINE	Below-the-line exclusions per share (EPSBXI – EPSAXI).
FutureOI	Operating income over the next quarter.
FutureGAAP	GAAP EPS over the next quarter.
RET	Cumulative monthly stock return over the current quarter.
LEVERAGE	Total debt (dlcq + dlttq) / total assets (atq).
SIZE	The nature logarithm of total assets (atq).
GROWTH	Growth in quarterly sales (Compustat data item SALEQ)
ROA	Net income (Compustat data item IBQ) scaled by beginning-of-quarter total assets (Compustat data item ATQ).
STDROA	Standard deviation of return on assets (ibq/atq) over at least three of the prior eight quarters.
BTM	Total assets (Compustat data item ATQ) divided by market value of equity plus book value of debt (Compustat data item PRCC_FQ*CSHOQ+ATQ-CEQQ).
ACCRUALS	Net income less cash from operations, divided by total assets.
SP_MAG	The ratio of the absolute value of special items in a quarter to total assets.
LOSS	An indicator variable equal to one if the firm reports a loss in the quarter and zero otherwise.
GUIDANCE	An indicator variable equals to one for firm-quarters with at least one outstanding management earnings forecast, zero otherwise.
INSTHOLD	Percentage of shares owned by the institutional investors as reported on the Thomson Reuters 13f Institutional Holdings database.
COSG	Costs of goods sold, scaled by lagged total asset.
CASH	Cash and short-term investments, scaled by last quarter total assets.
SGA	Sales, general, and administrative expenses, scaled by lagged average total assets.
SA	Proposed by Hadlock and Pierce (2010), refers to the "Size-Age Index" used to measure the likelihood of a firm facing financial constraints.
OPAQUE	Financial reporting opaqueness.
ABSAC	The absolute value of abnormal accruals estimated based on the modified Jones model as in Kothari et al. (2015).
MEF	An indicator variable equals to one for firm-quarters with at least one outstanding management earnings forecast, zero otherwise.
ANALYST_NG	An indicator variable equal to 1 if the IBES actual EPS reported by analysts is different from GAAP operating income in the quarter, 0 otherwise.
Reg_FRG	The regulation of a single topic by multiple federal agencies.
Topic_Disp	The dispersion of topics raised by the company in their annual reports.
Reg_Quantity	The amount of the relevant regulations

APPENDIX B

Samples of Manual Identification of Non-GAAP Reporting Practices Considering Regulatory Burden

I identify several classical examples wherein managers adjust their financial reporting strategies in response to regulatory burdens or regulatory shocks by utilizing non-GAAP earnings. I have extracted the original text from the non-GAAP financial measures section of the company's 8-K filings, and in some cases, provided detailed explanations if necessary to demonstrate why managers made non-GAAP adjustments due to specific regulatory changes or new regulations. I also provided detailed explanations as to why these adjustments were made based on regulations that resulted in compliance costs, leading the company to exclude certain items that can reasonably be attributed to transitory factors from GAAP earnings metrics. ***Definition of Compliance costs***: According to OMB guidelines, compliance costs encompass several elements: ***searching for data (1), compiling the materials (2)***, and ***filing the 10-K form (3)*** with the U.S. Securities and Exchange Commission. It also includes ***the costs of acquiring technology (4)*** and ***training personnel (5).*** Similarly, the burden associated with ***tax returns (6)*** includes not only the costs of filling the forms but also those associated with ***hiring a professional advisor (7)***, ***collecting the information (8)***, and ***purchasing the necessary software (9)***.

1) AGILENT TECHNOLOGIES, Inc. (NYSE: A) PRESS FOURTH QUARTER 2018

Excerpt from Firm's Non-GAAP Financial Measures-Special compliance costs include costs associated with transforming our processes to implement ***new regulations*** such as the EU's General Data Protection ***Regulation*** (GDPR)…..

Explanation: This direct evidence indicates that firms explicitly acknowledge the creation of an entry specifically designated as special compliance costs. These costs encompass a variety of combined items related to transforming their processes in order to comply with new regulations.2) **JOHN WILEY & SONS, INC.**

Excerpt from Firm's Non-GAAP Financial Measures---In connection with the ***Coronavirus Aid, Relief, and Economic Security Act ("CARES Act") and certain regulations*** issued in late July 2020, the Company elected to ***carry back its fiscal year 2020 loss for tax purposes (3)*** ("NOL") to its fiscal year 2015 and claimed a $20.7 million refund…..

Explanation: This implies that the benefits from the CARES Act, like tax relief or other credits, have been acknowledged in GAAP earnings but are excluded from non-GAAP earnings, possibly because the company sees them as one-time benefits that should not be regarded as part of their regular earnings. This approach demonstrates a more conservative reporting stance in non-GAAP earnings, highlighting core operating performance without the impact of temporary benefits from legislation such as the CARES Act. ***(3)***

3) Restaurant Brands International Inc Reports First Quarter 2019 Results

Excerpt from Firm's Non-GAAP Financial Measures---Costs arising primarily from ***professional advisory and consulting services (7)*** associated with corporate restructuring initiatives related to the ***interpretation and implementation of the Tax Cuts and Jobs Act (8)***, which was enacted on December 22, 2017, including Treasury regulations proposed in late 2018.

4) **NeoGenomics the second quarter of 2018.**

Excerpt from Firm's Non-GAAP Financial Measures---**Non-cash, stock-based compensation expenses**: Because many of the company's full-time physicians reside in California, ***state regulations against*** the corporate practice of medicine require us to ***retain their professional service corporations (5, 7)*** rather than hire them as employees. GAAP provides that variable stock- based compensation treatment be applied for non-employee service providers….

Explanation: State regulations, such as those in California against the corporate practice of medicine, impact how companies structure their relationships with certain service providers, such as physicians. Since the regulations prevent direct employment of these physicians by the company, they must instead engage them through their professional service corporations.
This arrangement results in these physicians being considered non-employees for accounting purposes. Under GAAP, stock-based compensation for non-employees is subject to variable accounting treatment. Unlike stock-based compensation for employees, which is generally fixed at the grant date, compensation for non-employees can fluctuate based on changes in the company's stock price from one quarter to another. These fluctuations can lead to significant variability in reported expenses and potentially cause large positive or negative impacts on total operating expenses. The company views these expenses as non-recurring or non-cash in nature because they are tied to changes in stock price rather than the company's core operating performance. By excluding these non-cash, stock-based compensation expenses from their Non-GAAP earnings, the company aims to present a clearer picture of its underlying operational performance without distortion caused by fluctuating stock-based compensation expenses resulting from state regulation and necessary engagement of non-employee service providers.

5) **JAZZ PHARMACEUTICALS ANNOUNCES FULL YEAR AND FOURTH QUARTER 2018**

Excerpt from Firm's Non-GAAP Financial Measures---Research and development (R&D) expenses (4) increased in 2018 and in the fourth quarter of 2018 compared to the same periods in 2017 on a GAAP and on a non-GAAP adjusted basis due to increased expenses related to the company's pre-clinical and clinical development programs and ***regulatory activities***, including an increase in related headcount for these activities, and support of our partner programs.

6) **FIRST CASH REPORTS THIRD QUARTER EARNINGS PER SHARE**

Excerpt from Firm's Non-GAAP Financial Measures---Continuing its strategy to reduce non-core consumer/payday lending operations, the Company also announced plans to close eight additional stand-alone consumer loan stores in Texas during the fourth quarter of 2015, bringing the total to 22 such store closings this year. As a result of these store closures and other ***regulatory activity*** continuing to affect the present and future profitability expectations for payday and title lending products, the Company recorded ***non-recurring restructuring expenses*** related to U.S. consumer loan operations of approximately $5.5

million net of tax, or $0.19 per share during the third quarter of 2015, of which $5.1 million was a ***non-cash goodwill impairment charge***. These non-recurring charges are a result of the continued significant deterioration in payday lending market conditions, ***primarily due to increased regulations***.

The company believes that regulatory changes have led to one-time, temporary expenses related to payday and title lending products. In particular, non-recurring restructuring costs and non-cash goodwill impairment charges are considered as temporary exclusions from the company's future business operations.

7) MERIT MEDICAL REPORTS EARNINGS FOR THIRD QUARTER OF 2019

Excerpt from Firm's Non-GAAP Financial Measures---Non-GAAP net income is calculated by adjusting GAAP net income (loss) for certain items which are deemed by Merit's management to be outside of core operations and vary in amount and frequency among periods, such as expenses related to new acquisitions, non-cash expenses related to amortization or write-off of previously acquired tangible and intangible assets, severance expenses, expenses resulting from ***non-ordinary*** course litigation, governmental proceedings or changes in tax or ***industry regulations (costs brought by regulations that was thought by managers as non-recurring)***, and debt issuance costs, as well as other items set forth in the tables below.

8) NEOGENOMICS, INC. (NASDAQ: NEO), A LEADING PROVIDER OF CANCER-FOCUSED GENETIC TESTING SERVICES, REPORTED ITS RESULTS FOR THE SECOND QUARTER OF 2018.

Excerpt from Firm's Non-GAAP Financial Measures---Non-cash, stock-based compensation expenses - Because many of the company's full-time physicians reside in California, ***state regulations*** (6) against the corporate practice of medicine require us to retain their professional service corporations rather than hire them as employees. GAAP provides that variable stock- based compensation treatment be applied for non-employee service providers.

9) GRAND CANYON EDUCATION, INC. REPORTS FIRST QUARTER 2019 RESULTS

Excerpt from Firm's Non-GAAP Financial Measures---Adjusted EBITDA is defined as net income plus interest expense, less interest income and other gain (loss) recognized on investments, plus income tax expense, and plus depreciation and amortization (EBITDA), as adjusted for (i) contributions to private Arizona school tuition organizations in lieu of the payment of state income taxes; (ii) loss on the Transaction; (iii) university related expenses; (iv) share-based compensation, (v) the revenue share rate on the master services agreement, and (vi) one-time, unusual charges or gains, such as litigation and ***regulatory reserves***, impairment charges and asset write-offs, and exit or lease termination costs.

10) APTARGROUP'S STRONG FOURTH QUARTER CAPS RECORD YEAR

Excerpt from Firm's Non-GAAP Financial Measures---Adjusted earnings per share, excluding the impact from the 2013 French ***tax regulation*** changes and the restructuring charges, increased 21% to $0.69 from $0.57 in the prior year

FIGURE

Figure 1

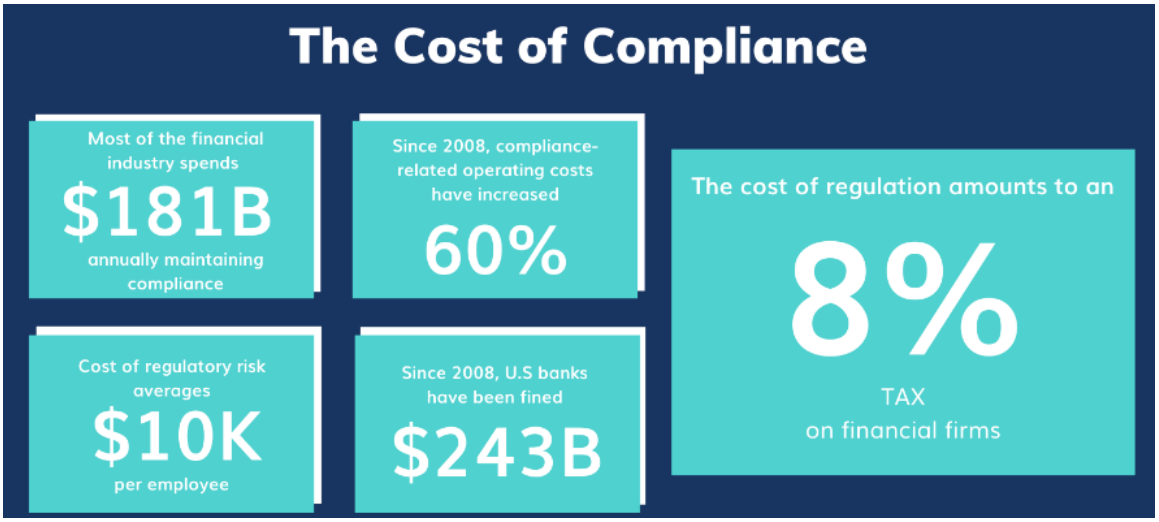


Fig.1 The description of current heightened regulatory costs. See website https://www.ascentregtech.com/blog/the-not-so-hidden-costs-of-compliance/

Figure 2

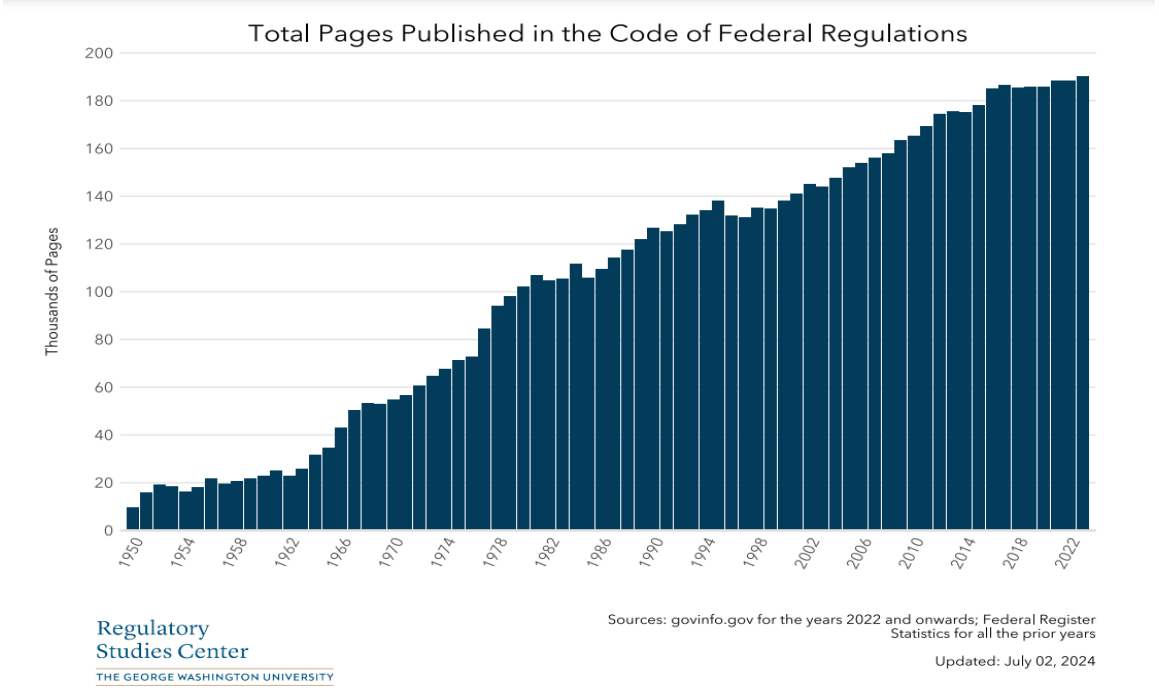
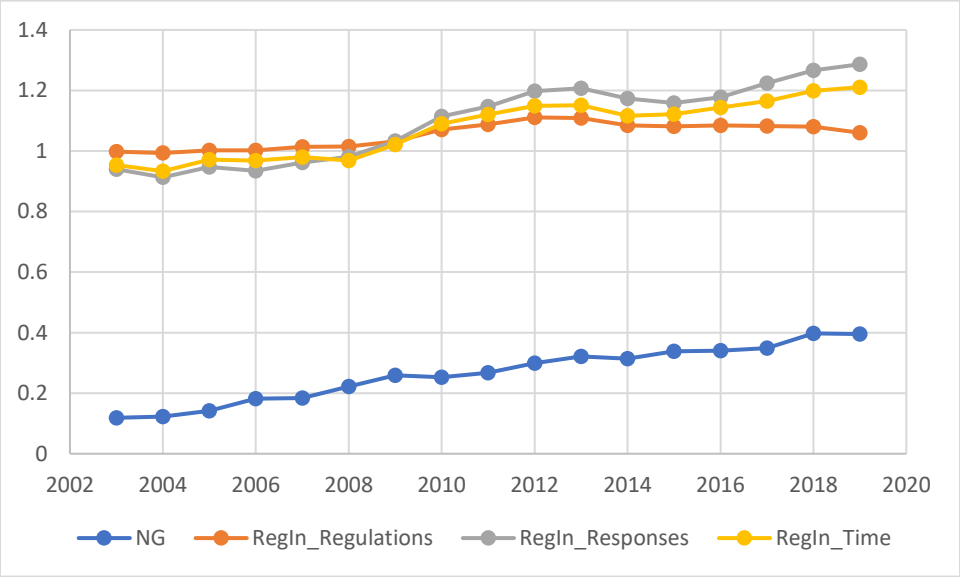


Fig. 2 presents the ever-increasing number of pages of regulations, reflecting upward tendency of regulatory burden in recent couple of decades.

Figure 3



Note: The figure 1 shows the annual frequency of non-GAAP disclosures and three regulatory intensity indexes throughout the sample period. The values for these variables are aggregated at the yearly level.

TABLES

Table 1 Descriptive statistics

Variable	N	Mean	SD	p50	Min	Max
Panel A: Variables of interest						
NG	62014	0.31	0.46	0.00	0.00	1.00
RegIn_Reg	62014	1.08	0.07	1.07	0.93	1.27
RegIn_Responses	62014	1.15	0.19	1.16	0.74	1.64
RegIn_Time	62014	1.12	0.15	1.11	0.75	1.56
EPSNG	19170	0.60	0.90	0.43	-3.35	45.36
TOTALEXCL	19170	0.23	1.09	0.09	-30.16	54.30
MGR_EXCRECUR	19170	0.10	0.24	0.05	-0.54	1.55
SPECIALEXCL	19170	0.11	0.40	0.02	-0.99	2.68
BELOWLINE	19170	0.00	0.02	0.00	-0.12	0.09
FutureOI	58418	0.43	1.07	0.29	-39.73	123.25
FutureGAAP	58419	0.41	1.05	0.28	-39.50	122.54
Panel B: Control variables						
RET	62014	0.17	0.51	0.11	-0.81	2.57
LEVERAGE	62014	0.20	0.18	0.18	0.00	0.73
SIZE	62014	6.73	1.99	6.72	2.03	11.40
GROWTH	62014	0.04	0.22	0.02	-0.64	1.44
ROA	62014	0.01	0.04	0.01	-0.30	0.09
STDROA	62014	0.02	0.03	0.01	0.00	0.24
BTM	62014	0.62	0.29	0.60	0.10	1.72
ACCRUALS	62014	-0.01	0.04	-0.01	-0.16	0.13
SP_MAG	62014	0.00	0.01	0.00	0.00	0.11
LOSS	62014	0.22	0.42	0.00	0.00	1.00
GUIDANCE	62014	0.63	0.48	1.00	0.00	1.00
INSTHOLD	62014	0.67	0.28	0.76	0.01	1.00

Table2 Likelihood test

Dependent Variable	*NG*					
	Probit	Probit	Probit	OLS	OLS	OLS
	(1)	(2)	(3)	(4)	(5)	(6)
RegIn_Time	0.226*			0.0713*		
	(1.65)			(1.90)		
RegIn_Responses		0.222*			0.0745**	
		(1.79)			(2.20)	
RegIn_Reg			0.810***			0.225***
			(2.71)			(2.68)
RET	0.0195	0.0207	0.0200	0.00708	0.00740	0.00710
	(0.98)	(1.04)	(1.00)	(1.41)	(1.47)	(1.41)
LEVERAGE	0.278**	0.278**	0.280**	0.0854**	0.0855**	0.0859**
	(2.25)	(2.25)	(2.27)	(2.35)	(2.35)	(2.36)
SIZE	0.153***	0.153***	0.153***	0.0445***	0.0445***	0.0445***
	(10.81)	(10.83)	(10.82)	(10.13)	(10.15)	(10.13)
GROWTH	0.0354	0.0350	0.0349	0.00535	0.00522	0.00532
	(1.18)	(1.16)	(1.16)	(0.73)	(0.71)	(0.72)
ROA	0.872**	0.866**	0.856**	0.266***	0.264***	0.261***
	(2.17)	(2.16)	(2.14)	(2.65)	(2.63)	(2.61)
STDROA	1.213**	1.213**	1.216**	0.297**	0.296**	0.300**
	(2.57)	(2.57)	(2.57)	(2.32)	(2.31)	(2.34)
BTM	-0.168**	-0.170**	-0.172**	-0.0451**	-0.0456**	-0.0464**
	(-2.34)	(-2.37)	(-2.40)	(-2.33)	(-2.36)	(-2.40)
ACCRUALS	-0.200	-0.203	-0.204	-0.0646	-0.0655	-0.0653
	(-0.99)	(-1.01)	(-1.01)	(-1.29)	(-1.30)	(-1.30)
SP_MAG	10.57***	10.57***	10.57***	3.297***	3.296***	3.294***
	(15.18)	(15.17)	(15.21)	(15.60)	(15.58)	(15.61)
LOSS	0.130***	0.130***	0.128***	0.0350***	0.0348***	0.0348***
	(3.45)	(3.44)	(3.42)	(3.23)	(3.22)	(3.22)
GUIDANCE	0.354***	0.354***	0.354***	0.0982***	0.0982***	0.0983***
	(9.40)	(9.40)	(9.41)	(9.05)	(9.05)	(9.05)
INSTHOLD	0.817***	0.817***	0.820***	0.187***	0.187***	0.188***
	(9.03)	(9.03)	(9.08)	(7.41)	(7.42)	(7.45)
Industry FE	YES	YES	YES	YES	YES	YES
Quarter FE	YES	YES	YES	YES	YES	YES
Controls	YES	YES	YES	YES	YES	YES
Pseudo R2/adjusted R2	0.1859	0.1860	0.1863	0.1994	0.1996	0.1997
N	62,014	62,014	62,014	62,014	62,014	62,014

This table presents the probit regression that estimates the propensity to disclose non-GAAP earnings with regards to regulatory intensity. The main independent variable in column (1) and (2) and (3) are RegIn_Time, RegIn Responses and RegIn Reg. Conlumn 1 to 3 are about baseline regressions using probit model and control industry and year-quarter fixed effect. Column 4 to 6 are about baseline regressions using OLS model and control firm and year-quarter fixed effect. Z-statistics based on standard errors clustered by firm are shown in parentheses. See Appendix A for variable descriptions. ***, **, and * denote significance at the 0.01, 0.05, and 0.10 levels, respectively.

Table 3 Aggressiveness Tests by New Indicator

Dependent Variables	HQ_GAAP_5	HQ_GAAP_5	HQ_GAAP_5	HQ_GAAP_3	HQ_GAAP_3	HQ_GAAP_3
	(1)	(2)	(3)	(4)	(5)	(6)
RegIn_Time	-0.367**			-0.351**		
	(-2.28)			(-2.17)		
RegIn_Responses		-0.167			-0.134	
		(-1.23)			(-0.98)	
RegIn_Reg			-0.621*			-0.729**
			(-1.92)			(-2.24)
Industry FE	YES	YES	YES	YES	YES	YES
Quarter FE	YES	YES	YES	YES	YES	YES
Controls	YES	YES	YES	YES	YES	YES
Pseudo R2	0.079	0.079	0.079	0.064	0.063	0.064
N	18,776	18,776	18,776	18,776	18,776	18,776

This table presents the probit regression analysis estimating the propensity to disclose non-GAAP earnings in the context of regulatory intensity. The indicator variable HQ GAAP < 5/3 cents equal one for firm-quarters in which (1) the firm discloses non-GAAP earnings and (2) the absolute value of the GAAP surprise (i.e., actual GAAP earnings minus the GAAP earnings analyst consensus forecast) is five/three cents per share or less. Columns 1 to 3 display results for HQ GAAP < 5 cents, while columns 4 to 6 present results when the dependent variable is replaced with HQ GAAP < 3 cents as a sensitivity check. Z-statistics, based on standard errors clustered by firm, are reported in parentheses. See Appendix A for variable descriptions. ***, **, and * denote significance at the 0.01, 0.05, and 0.10 levels, respectively.

Table 4 Persistence tests

	Dependent Variable=FutureOI			Dependent Variable=FutureGAAP		
	(1)	(2)	(3)	(4)	(5)	(6)
EPSNG	0.719***	0.673***	0.798***	0.691***	0.641***	0.779***
	(6.31)	(6.77)	(3.60)	(6.31)	(6.71)	(3.65)
TOTALEXCL	-0.214***	-0.201***	-0.089	-0.218***	-0.204***	-0.104
	(-2.86)	(-3.11)	(-0.57)	(-3.08)	(-3.32)	(-0.69)
RegIn_Time	-0.090			-0.086		
	(-1.45)			(-1.42)		
EPSNG_RegIn_Time	0.051			0.055		
	(0.56)			(0.62)		
TOTALEXCL_RegIn_Time	0.115*			0.119**		
	(1.79)			(1.98)		
RegIn_Responses		-0.084			-0.085*	
		(-1.62)			(-1.69)	
EPSNG_RegIn_Responses		0.087			0.093	
		(1.17)			(1.30)	
TOTALEXCL_RegIn_Responses		0.099*			0.103**	
		(1.90)			(2.09)	
RegIn_Reg			-0.131			-0.140
			(-1.06)			(-1.18)
EPSNG_RegIn_Reg			-0.017			-0.021
			(-0.08)			(-0.11)
TOTALEXCL_RegIn_Reg			0.010			0.024
			(0.07)			(0.17)
Industry FE	YES	YES	YES	YES	YES	YES
Quarter FE	YES	YES	YES	YES	YES	YES
Controls	YES	YES	YES	YES	YES	YES
Adj R-squared	0.670	0.670	0.670	0.673	0.673	0.672
N	17,989	17,989	17,989	17,989	17,989	17,989

This table presents the OLS regressions for the change in the quality of non-GAAP reporting in context of regulatory intensity based on Eq. (3). Z-statistics based on standard errors clustered by firm are shown in parentheses. In columns 1 to 6, the analysis controls for industry and year-quarter fixed effects, while columns 7 to 12 incorporate firm and year-quarter fixed effects. See Appendix A for variable descriptions. ***, **, and * denote significance at the 0.01, 0.05, and 0.10 levels, respectively.

Table 5 Persistence Tests after Decomposition

Panel A: The results for RegIn_Time

Dependent Variable	FutureOI	FutureGAAP
EPSNG	0.898***	0.859***
	(3.385)	(3.396)
MGR_EXCRECUR	-0.901***	-0.885***
	(-2.689)	(-2.684)
SPECIALEXCL	-0.223	-0.219
	(-1.109)	(-1.119)
BELOWLINE	0.169	0.106
	(0.625)	(0.426)
RegIn_Time	-0.069	-0.068
	(-0.545)	(-0.554)
EPSNG_RegIn_Time	-0.043	-0.036
	(-0.204)	(-0.177)
MGR_EXCRECUR_RegIn_Time	0.683**	0.671**
	(2.577)	(2.558)
SPECIALEXCL_RegIn_Time	0.231	0.228
	(1.221)	(1.232)
BELOWLINE_RegIn_Time	-0.006	0.043
	(-0.025)	(0.186)
Industry FE	YES	YES
Quarter FE	YES	YES
Controls	YES	YES
Adj R-squared	0.571	0.569
N	17,989	17,989

Panel B: The results for RegIn_Responses

Dependent Variable	FutureOI	FutureGAAP
EPSNG	0.932***	0.891***
	(2.818)	(2.801)
MGR_EXCRECUR	-0.918***	-0.905***
	(-2.995)	(-3.004)
SPECIALEXCL	-0.175	-0.172
	(-0.936)	(-0.940)
BELOWLINE	-0.192	-0.236
	(-0.715)	(-0.946)
RegIn_Responses	0.009	0.004
	(0.060)	(0.028)
EPSNG_RegIn_Responses	-0.068	-0.060
	(-0.264)	(-0.241)
MGR_EXCRECUR_RegIn_Responses	0.660***	0.651***
	(2.906)	(2.901)
SPECIALEXCL_RegIn_Responses	0.184	0.181
	(1.078)	(1.085)
BELOWLINE_RegIn_Responses	0.315	0.347
	(1.212)	(1.422)
Industry FE	YES	YES
Quarter FE	YES	YES
Controls	YES	YES
Adj R-squared	0.573	0.571
N	17,989	17,989

Panel C: The results for RegIn_Reg

Dependent Variable	FutureOI	FutureGAAP
EPSNG	0.534**	0.548**
	(2.143)	(2.264)
MGR_EXCRECUR	-1.169**	-1.125**
	(-2.050)	(-2.001)
SPECIALEXCL	-0.718	-0.715
	(-1.231)	(-1.254)
BELOWLINE	0.640	0.559
	(0.741)	(0.686)
RegIn_Reg	-0.294**	-0.280**
	(-2.036)	(-1.968)
EPSNG_RegIn_Reg	0.275	0.235
	(1.246)	(1.101)
MGR_EXCRECUR_RegIn_Reg	0.997*	0.959*
	(1.806)	(1.756)
SPECIALEXCL_RegIn_Reg	0.698	0.695
	(1.246)	(1.268)
BELOWLINE_RegIn_Reg	-0.433	-0.366
	(-0.537)	(-0.480)
Industry FE	YES	YES
Quarter FE	YES	YES
Controls	YES	YES
Adj R-squared	0.567	0.564
N	17,989	17,989

This table displays the Ordinary Least Squares (OLS) regression results analyzing the impact of regulatory intensity on the quality of non-GAAP reporting, as per Eq. (4). The key variable examined is managers' total recurring exclusions per share (MGR_EXCRECUR), derived from the decomposition of total exclusions per share (TOTALEXCL) and the interaction term involving MGR_EXCRECUR and regulatory intensity. Z-statistics, accounting for clustered standard errors by firm, are reported in parentheses. The analyses for panel A, B, and C using the different proxies for regulatory intensity and all controls for industry and year-quarter fixed effects. Detailed descriptions of the variables can be found in Appendix A. Levels of significance are denoted by ***, **, and * representing significance at the 0.01, 0.05, and 0.10 levels, respectively.

Table 6: Regulatory Intensity and Value Relevance of Exclusions

VARIABLES		(1) Price	(2) Price	(3) Price
BV		0.044***	0.046***	0.055**
		(5.372)	(6.091)	(2.167)
EPSNG		0.053	0.003	-0.533
		(0.347)	(0.020)	(-1.383)
TOTALEXCL	β1	0.209***	0.207***	0.227
		(2.669)	(3.047)	(1.511)
RegIn_Time		0.082		
		(0.501)		
BV_RegIn_Time		-0.010		
		(-1.467)		
EPSNG_RegIn_Time		0.120		
		(0.988)		
TOTALEXCL_RegIn_Time	β2	-0.123**		
		(-2.023)		
RegIn_Responses			0.077	
			(0.539)	
BV_RegIn_Responses			-0.012*	
			(-1.941)	
EPSNG_RegIn_Responses			0.156	
			(1.510)	
TOTALEXCL_RegIn_Responses	β3		-0.116**	
			(-2.382)	
RegIn_Reg				-0.198
				(-0.498)
BV_RegIn_Reg				-0.021
				(-0.860)
EPSNG_RegIn_Reg				0.661*
				(1.880)
TOTALEXCL_RegIn_Reg	β4			-0.151
				(-1.116)
Industry FE		YES	YES	YES
Quarter FE		YES	YES	YES
Controls		YES	YES	YES
Adj R-squared		0.716	0.716	0.716
N		19,076	19,076	19,076

This table examines the association of value relevance of non-GAAP earnings for firms in context of regulatory intensity. Price is the closing price at fiscal-quarter end; BV is the book value. Columns 1 to 3 control for industry and year-quarter fixed effects. All other variables are in time t. Z-statistics based on standard errors clustered by firm are shown in parentheses. See Appendix A for variable descriptions. ***, **, and * denote significance at the 0.01, 0.05, and 0.10 levels, respectively.

Table 7 Persistence Tests Conditional on COGS

	Dependent Variable=FutureOI		Dependent Variable=FutureGAAP	
	(1)	(2)	(3)	(4)
	Low COGS	High COGS	Low COGS	High COGS
EPSNG	0.803***	0.763***	0.771***	0.735***
	(6.326)	(4.564)	(6.338)	(4.533)
TOTALEXCL	-0.170**	-0.383***	-0.183**	-0.364***
	(-2.116)	(-2.665)	(-2.420)	(-2.631)
RegIn_Time	-0.041	-0.040	-0.041	-0.035
	(-0.659)	(-0.350)	(-0.676)	(-0.310)
EPSNG_RegIn_Time	0.020	-0.028	0.027	-0.025
	(0.214)	(-0.184)	(0.304)	(-0.172)
TOTALEXCL_RegIn_Time	0.084	0.237*	0.094	0.225*
	(1.275)	(1.861)	(1.511)	(1.837)
Industry FE	YES	YES	YES	YES
Quarter FE	YES	YES	YES	YES
Controls	YES	YES	YES	YES
Adj R-squared	0.704	0.651	0.707	0.652
N	10,136	7,053	10,136	7,053

This table presents estimation results for Model 3, which examines the effect of regulatory intensity (RegIn_Time) on non-GAAP exclusion quality across two specifications conditional on the prior fiscal quarter's cost of goods sold (COGS). The level of cost of goods sold for a particular firm-quarter is high (low) if the COGS for that particular quarter is above (below) the sample median. The key variables of interest are RegIn_Time and its interaction with TOTALEXCL. Results for alternative regulatory measures (RegIn_Responses and RegIn_Reg) are reported in the online appendix. The analysis includes industry and year-quarter fixed effects, with all other variables measured in period t. Z-statistics, based on standard errors clustered at the firm level, appear in parentheses (see Appendix A for variable definitions). Significance levels at 1%, 5%, and 10% are denoted by ***, **, and *, respectively.

Table 8 Persistence Tests Conditional on CASH

	Dependent Variable=FutureOI		Dependent Variable=FutureGAAP	
	(1)	(2)	(3)	(4)
	Low CASH	High CASH	Low CASH	High CASH
EPSNG	0.660***	0.909***	0.631***	0.872***
	(4.174)	(6.078)	(4.112)	(6.069)
TOTALEXCL	-0.270***	-0.193	-0.276***	-0.192*
	(-2.609)	(-1.543)	(-2.785)	(-1.660)
RegIn_Time	-0.094	-0.045	-0.098	-0.041
	(-0.907)	(-0.545)	(-0.978)	(-0.506)
EPSNG_RegIn_Time	0.088	-0.068	0.092	-0.059
	(0.651)	(-0.586)	(0.707)	(-0.528)
TOTALEXCL_RegIn_Time	0.136	0.097	0.145*	0.095
	(1.585)	(0.909)	(1.766)	(0.969)
Industry FE	YES	YES	YES	YES
Quarter FE	YES	YES	YES	YES
Controls	YES	YES	YES	YES
Adj R-squared	0.643	0.718	0.644	0.721
N	7,574	8,053	7,574	8,053

This table presents estimation results for Model 3, which examines the effect of regulatory intensity (RegIn_Time) on non-GAAP exclusion quality across two specifications conditional on the cash holdings scaled by prior quarter total assets. The level of cash flow for a particular firm-quarter is high (low) if the CASH for that particular quarter is above (below) the sample median. The key variables of interest are RegIn_Time and its interaction with TOTALEXCL. Results for alternative regulatory measures (RegIn_Responses and RegIn_Reg) are reported in the online appendix. The analysis includes industry and year-quarter fixed effects, with all other variables measured in period t. Z-statistics, based on standard errors clustered at the firm level, appear in parentheses (see Appendix A for variable definitions). Significance levels at 1%, 5%, and 10% are denoted by ***, **, and *, respectively.

Table 9 Persistence Tests Conditional on SA

	Dependent Variable=FutureOI		Dependent Variable=FutureGAAP	
	(1)	(2)	(3)	(4)
	Low SA	High SA	Low SA	High SA
EPSNG	0.454**	0.828***	0.407**	0.805***
	(2.50)	(5.56)	(2.32)	(5.63)
TOTALEXCL	0.002	-0.289***	-0.016	-0.289***
	(0.01)	(-3.03)	(-0.13)	(-3.23)
RegIn_Time	-0.063	-0.110	-0.058	-0.107
	(-0.91)	(-1.08)	(-0.85)	(-1.09)
EPSNG_RegIn_Time	0.256*	-0.038	0.273*	-0.038
	(1.69)	(-0.32)	(1.86)	(-0.34)
TOTALEXCL_RegIn_Time	-0.090	0.183**	-0.072	0.183**
	(-0.88)	(2.37)	(-0.72)	(2.55)
Industry FE	YES	YES	YES	YES
Quarter FE	YES	YES	YES	YES
Controls	YES	YES	YES	YES
Adj R-squared	0.618	0.666	0.619	0.670
N	7,736	10,251	7,736	10,251

This table presents estimation results for Model 3, which examines the effect of regulatory intensity (RegIn_Time) on non-GAAP exclusion quality across two specifications conditional on the SA. The level of financial constraint for a particular firm-quarter is high (low) if the SA for that particular quarter is above (below) the sample median. The key variables of interest are RegIn_Time and its interaction with TOTALEXCL. Results for alternative regulatory measures (RegIn_Responses and RegIn_Reg) are reported in the online appendix. The analysis includes industry and year-quarter fixed effects, with all other variables measured in period t. Z-statistics, based on standard errors clustered at the firm level, appear in parentheses (see Appendix A for variable definitions). Significance levels at 1%, 5%, and 10% are denoted by ***, **, and *, respectively.

Table 10 Persistence Tests Partitioned on Corporate Transparency Characteristics

Panel A: Institutional ownership

	Dependent Variable=FutureOI		Dependent Variable=FutureGAAP	
	(1)	(2)	(3)	(4)
	Low InsOwn	High InsOwn	Low InsOwn	High InsOwn
EPSNG	0.711***	0.736***	0.711***	0.697***
	(5.529)	(4.752)	(5.648)	(4.703)
TOTALEXCL	-0.392***	-0.136*	-0.394***	-0.143*
	(-2.763)	(-1.657)	(-2.905)	(-1.824)
RegIn_Time	-0.076	-0.097	-0.066	-0.095
	(-1.074)	(-1.102)	(-0.954)	(-1.121)
EPSNG_RegIn_Time	0.069	0.030	0.048	0.042
	(0.685)	(0.245)	(0.488)	(0.359)
TOTALEXCL_RegIn_Time	0.257**	0.058	0.260**	0.064
	(2.127)	(0.844)	(2.267)	(0.989)
Industry FE	YES	YES	YES	YES
Quarter FE	YES	YES	YES	YES
Controls	YES	YES	YES	YES
Adj R-squared	0.727	0.638	0.728	0.642
N	6,380	11,605	6,380	11,605

Panel B: Financial reporting opaqueness

	Dependent Variable=FutureOI		Dependent Variable=FutureGAAP	
	(1)	(2)	(3)	(4)
	Low OPAQUE	High OPAQUE	Low OPAQUE	High OPAQUE
EPSNG	0.941***	0.912***	0.922***	0.909***
	(8.829)	(8.058)	(8.713)	(8.244)
TOTALEXCL	-0.142	-0.374**	-0.150	-0.377**
	(-0.951)	(-2.402)	(-1.075)	(-2.531)
RegIn_Time	-0.008	0.051	-0.020	0.067
	(-0.110)	(0.563)	(-0.263)	(0.764)
EPSNG_RegIn_Time	-0.076	-0.028	-0.079	-0.047
	(-0.869)	(-0.293)	(-0.912)	(-0.503)
TOTALEXCL_RegIn_Time	0.060	0.235*	0.070	0.237*
	(0.508)	(1.761)	(0.636)	(1.854)
Industry FE	YES	YES	YES	YES
Quarter FE	YES	YES	YES	YES
Controls	YES	YES	YES	YES
Adj R-squared	0.743	0.749	0.746	0.750
N	4,221	3,551	4,221	3,551

This table presents estimation results for Model 3, which examines the effect of regulatory intensity (RegIn_Time) on non-GAAP exclusion quality across two corporate transparency specifications. The level of institutional ownership and financial reporting opacity in panel A and panel B for a particular firm-quarter is high (low) if the INSTHOLD and OPAQUE for that particular quarter is above (below) the sample median, respectively. The key variables of interest are RegIn_Time and its interaction with TOTALEXCL. Results for alternative regulatory measures (RegIn_Responses and RegIn_Reg) are reported in the online appendix. The analysis includes industry and year-quarter fixed effects, with all other variables measured in period t. Z-statistics, based on standard errors clustered at the firm level, appear in parentheses (see Appendix A for variable definitions). Significance levels at 1%, 5%, and 10% are denoted by ***, **, and *, respectively.

Table 11 Persistent Tests Partitioned on Aggressiveness Indicator

	Dependent Variable=FutureOI				Dependent Variable=FutureGAAP			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	HQ_GAAP_5=1	HQ_GAAP_5=0	HQ_GAAP_3=1	HQ_GAAP_3=0	HQ_GAAP_5=1	HQ_GAAP_5=0	HQ_GAAP_3=1	HQ_GAAP_3=0
EPSNG	0.758***	0.791***	0.729***	0.759***	0.763***	0.728***	0.737***	0.697***
	(6.295)	(7.316)	(6.289)	(7.221)	(5.504)	(7.028)	(5.520)	(6.950)
TOTALEXCL	-0.187**	-0.238**	-0.198**	-0.227**	-0.199*	-0.230**	-0.208**	-0.226**
	(-2.239)	(-2.041)	(-2.482)	(-2.096)	(-1.938)	(-2.218)	(-2.119)	(-2.304)
RegIn_Time	-0.006	-0.085	-0.007	-0.082	-0.057	-0.081	-0.052	-0.079
	(-0.064)	(-1.571)	(-0.081)	(-1.549)	(-0.554)	(-1.514)	(-0.523)	(-1.526)
EPSNG_RegIn_Time	0.026	-0.005	0.030	0.000	0.016	0.049	0.016	0.054
	(0.267)	(-0.063)	(0.322)	(0.003)	(0.145)	(0.593)	(0.153)	(0.678)
TOTALEXCL_RegIn_Time	0.109	0.108	0.120*	0.101	0.132	0.103	0.141*	0.102
	(1.539)	(1.077)	(1.776)	(1.093)	(1.499)	(1.181)	(1.673)	(1.242)
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES
Quarter FE	YES	YES	YES	YES	YES	YES	YES	YES
Controls	YES	YES	YES	YES	YES	YES	YES	YES
Adj R-squared	0.738	0.612	0.741	0.614	0.753	0.626	0.756	0.628
N	5,634	11,988	5,634	11,988	3,994	13,626	3,994	13,626

This table reports coefficient estimates (with z-statistics in parentheses) from regressions based on Equation (3). The results are estimated by partitioning on the novel non-GAAP quality indicator (HQ_GAAP) at 5-cent/ 3-cent GAAP earnings surprise thresholds, respectively. The dependent variables are future operating income from the column 1 to 4 and future GAAP earnings from the column 5 to 8. The key variables of interest are RegIn_Time, along with its interaction terms with TOTALEXCL. Results for alternative regulatory measures (RegIn_Responses and RegIn_Reg) are reported in the online appendix. All specifications include industry and year-quarter fixed effects. All other variables are in time t. Z-statistics based on standard errors clustered by firm are shown in parentheses. See Appendix A for variable descriptions. ***, **, and * denote significance at the 0.01, 0.05, and 0.10 levels, respectively.

Table 12 Alternative measures

Dependent Variables	NG	NG	NG
	(1)	(2)	(3)
Regulatory_Fragmentation	3.805***		
	(3.121)		
Topic_Dispersion		-1.257	
		(-0.578)	
Regulation_Quantity			0.453
			(1.345)
Industry FE	YES	YES	YES
Quarter FE	YES	YES	YES
Controls	YES	YES	YES
Pseudo R2	0.189	0.187	0.187
N	58,746	58,746	58,746

This table reports coefficient estimates (with z-statistics in parentheses) from regressions based on Equation (1), using alternative dependent variables.These proxies include: Reg_FRG, capturing regulatory fragmentation as the duplicative oversight of a single topic by multiple federal agencies—a direct measure of overlapping regulatory burden; Topic_Disp, quantifying the dispersion of topics addressed in a firm's annual reports; and Reg_Quantity, reflecting the sheer volume of applicable regulations.All specifications include industry and year-quarter fixed effects. All other variables are in time t. Z-statistics based on standard errors clustered by firm are shown in parentheses. See Appendix A for variable descriptions. ***, **, and * denote significance at the 0.01, 0.05, and 0.10 levels, respectively.

Table 13 Difference-in-difference analysis

Dependent variable:	NG			
	State-level shock		Industry-level shock	
	(1)	(2)	(3)	(4)
TREAT_TIME	0.537***		0.408***	
	(3.410)		(2.980)	
TREAT_PRE4		-0.228		0.437
		(-0.886)		(1.437)
TREAT_PRE3		0.067		0.210
		(0.260)		(0.542)
TREAT_PRE2		-0.411		0.419
		(-1.584)		(1.084)
TREAT_PRE0		0.666**		0.320
		(2.525)		(0.832)
TREAT_POST1		0.661**		0.867**
		(2.439)		(2.278)
TREAT_POST2		0.450*		1.044***
		(1.662)		(2.738)
TREAT_POST3		0.455*		1.036***
		(1.660)		(2.725)
TREAT_POST4		0.701**		0.688**
		(2.177)		(2.269)
Controls	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES
Quarter FE	YES	YES	YES	YES
N	14,143	14,143	10,017	10,017
Pseudo R-Squared	0.041	0.039	0.029	0.028

This table reports generalized difference-in-differences (DID) estimates testing whether managers increase non-GAAP reporting following abrupt rises in regulatory pressure. The analysis leverages two quasi-natural experiments involving exogenous regulatory shocks at the state and industry levels. Treatment firms are defined as those operating in states or industries exposed to these shocks, while control firms are unaffected by the regulatory changes. Propensity score matching (PSM) is applied to construct a matched control group. Event-time indicators PRE (-4) to PRE (-1) denote quarters 4 to 1 preceding the regulatory shock, while POST1 to POST4 represent the four subsequent quarters. Columns 1–4 incorporate firm and year-quarter fixed effects. Z-statistics, clustered at the firm level, are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 14 Managerial and Analyst Responses to Regulatory Pressure

Panel A: Accrual Earnings Management and Voluntary Forecast Guidance

Dependent variable	MEF	MEF	MEF	ABSAC	ABSAC	ABSAC
	(1)	(2)	(3)	(4)	(5)	(6)
RegIn_ Time	-0.052			-0.001		
	(-1.184)			(-0.280)		
RegIn_Responses		-0.031			0.003	
		(-0.836)			(0.762)	
RegIn_Reg			-0.097			-0.016
			(-1.022)			(-1.243)
Industry FE	YES	YES	YES	YES	YES	YES
Quarter FE	YES	YES	YES	YES	YES	YES
Controls	YES	YES	YES	YES	YES	YES
N	62,014	62,014	62,014	32,136	32,136	32,136
Adjusted R2	0.315	0.315	0.315	0.288	0.288	0.288

Panel B: Analyst Non-GAAP Disclosures and Regulatory Intensity

Dependent variable	Analyst_NG	Analyst_NG	Analyst_NG
	(1)	(2)	(3)
RegIn_ Time	0.176*		
	(1.795)		
RegIn_Responses		0.174**	
		(2.100)	
RegIn_Reg			0.827***
			(3.870)
Industry FE	YES	YES	YES
Quarter FE	YES	YES	YES
Controls	YES	YES	YES
N	53,091	53,091	53,091
Adjusted R2	0.320	0.320	0.320

This table presents other possible channels that manager may decide considering regulatory intensity. Panel A displays Ordinary Least Squares (OLS) regression outcomes investigating the relationship between management earnings forecasts or accrual earnings management and regulatory intensity metrics. Panel B presents the effect of the likelihood of analysts' non-GAAP disclosure on regulatory intensity metrics. The results are from a probit regression of Eq. 1. The results control for industry and year-quarter fixed effects. All other variables are in time t. Z-statistics based on standard errors clustered by firm are shown in parentheses. See Appendix A for variable descriptions. ***, **, and * denote significance at the 0.01, 0.05, and 0.10 levels, respectively.

Table 15 Mediation test

Panel A: SGA

Dependent Variable:	NG	SGA	NG
	(1)	(2)	(3)
RegIn_Time	0.071*	0.020***	0.069*
	(1.896)	(4.256)	(1.728)
SGA			0.344**
			(2.317)
Industry FE	YES	YES	YES
Quarter FE	YES	YES	YES
Controls	YES	YES	YES
N	62,014	56,893	56,893
Pseudo R^2/Adjusted R^2	0.199	0.505	0.205
Sobel test		Z=2.035 (P=0.042)	
Mediation effect		Mediation effect=0.097	

Panel B: COGS

Dependent Variable:	NG	COGS	NG
	(1)	(2)	(3)
RegIn_Time	0.071*	-0.014	0.079**
	(1.896)	(-0.920)	(2.023)
COGS			-0.094**
			(-2.085)
Industry FE	YES	YES	YES
Quarter FE	YES	YES	YES
Controls	YES	YES	YES
N	62,014	58,415	58,415
Pseudo R^2/Adjusted R^2	0.199	0.441	0.202
Sobel test		Z=0.841 (P=0.400)	
Mediation effect		Mediation effect=0.018	

This table presents the results of mediation analysis of the relations among regulatory intensity, mediating variables (SGA in panel A, COGS in panel B), and non-GAAP reporting. We estimate the direct effect of regulatory intensity on the non-GAAP reporting as well as the indirect effects through two different mediators. We present Z-statistics and proportion of mediating effect from the results of Sobel (1982) test statistics. The significance of the indirect effect is assessed using the Sobel (1982) test. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.