

How negative accounting news events, voluntary ESG assurance, and assurance provider influence consumer purchasing intentions

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ABSTRACT

Consumers are increasingly conscientious of societal and environmental impacts of their purchases, prompting companies to make environmental, social, and governance (ESG) claims and engage in voluntary ESG assurance. However, prior literature lacks insight into whether consumers consider negative accounting news events (e.g., error/irregularity restatements) and their effects on purchasing intentions. Using real world consumers of sustainable goods, we investigate how varying levels of negative accounting news events (i.e., error or irregularity restatements), the presence of ESG product-quality assurance (e.g., cage free egg certification), and the type of assurance provider (e.g., an accounting firm that also audits the financial statements, an accounting firm that does not audit the financial statements, government agency) influence purchasing intentions and organizational legitimacy perceptions. We find that consumers surrogate negative accounting news events as indicators of ESG claim reliability, negatively impacting purchasing intentions, especially for more severe events (e.g., irregularity). However, ESG product-quality assurance partially mitigates these negative effects. Moreover, we find that when an error restatement occurs, the mitigating effect is less pronounced when the same firm provides both financial statement and ESG product-quality assurance compared to a governmental agency or non-financial statement auditor. Finally, when irregularities occur, though product-quality assurance partially mitigates the detrimental effects, there is no difference between assurance providers, likely because management's willingness to deceive auditors decreases the perceived reliability of assurance in general. Our results suggest boards should obtain ESG product-quality assurance and carefully select their assurance providers.

1. Introduction

Demand for socially responsible business practices is increasing in most economies worldwide (Brown, 2011). This trend is evidenced by a growing number of conscientious consumers, who consider the societal consequences of their purchasing decisions, including the public consequences of private consumption (Webster, 1975, p. 188). Many consumers use their purchasing power to drive social change, thus increasing demand for goods that make environmental, social, and governance (ESG) claims (Gelski, 2019; PWC, 2021a). Brand trust has become a critical determinant in conscientious consumer choice. For example, a survey by Edelman (2020) finds over 80 percent of consumers value being able to “trust the brand to do what is right” in their purchasing decisions.

While conscientious consumers' reactions to various organizational and product traits have been studied (Prasad, Kimeldorf, and Meyer, 2004; Sen and Bhattacharya, 2001), reactions to accounting and financial reporting practices have not. Although the relation between accounting information and consumer purchasing intentions (CPI) may not be obvious, we contend, in a setting where consumers value a product's unobservable ESG traits, accounting practices can serve as surrogate information for consumers' perceptions of organizational legitimacy (OL). We also examine whether voluntary assurance of ESG production practices can mitigate these effects and if assurance provider matters to consumers.

Negative accounting news events (e.g., restatements, tax avoidance claims) may substantially influence CPI, particularly for goods with credence attributes, which are product traits unobservable even after

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consumption (Baksi and Bose, 2006).¹ Market demand for credence goods has risen as consumers show more interest in the ESG impact of their purchases and are willing to pay more for responsibly produced goods (PwC, 2021a; 2021b). Accordingly, current retail markets offer various goods that make unobservable, ESG production claims (e.g., cage free eggs), creating an information asymmetry between consumers and producers.

Our research bridges OL and credence goods literature streams to develop our hypotheses.² Prior research suggests negative accounting news could be viewed by consumers as a diagnostic indicator of an organization's unobservable ESG production claims – potentially influencing CPI. Consumers are exposed to business and accounting news daily and prior research finds consumers react to earnings announcements (Noh, So, and Zhu 2021). However, the literature is silent on whether consumers concern themselves with an organization's reporting practices and how accounting events affect perceptions of other organizational claims (e.g., ESG claims). We expect that when financial reporting legitimacy is in doubt, consumers will question the organization's overall legitimacy and its ESG claims, thereby affecting CPI.

Consumers' perceptions of OL are critical when products make ESG claims, as these are often unobservable credence attributes (e.g., fair trade). This creates strong incentives and opportunities for producers to defraud consumers (Balafoutas and Kerschbamer, 2020). Thus, consumers must rely on surrogate indicators of claim legitimacy (Bonroy and Constantatos, 2008). Although restatements do not directly inform about an ESG claim, negative perceptions from restatements should act as surrogates for beliefs about the organization's ESG claims (Ma and Lee, 2014; Mohr and Webb, 2005), leading to lower CPI for restating companies than non-restating companies. Moreover, irregularities (i.e., fraud) are more severe than errors (Palmrose, Richardson, and Scholz, 2004; Scholz, 2014), and raise additional OL concerns because they are intentional, thus damaging OL more than errors (Hennes et al., 2008). Accordingly, we predict irregularities will result in lower CPI than errors.

Next, consumers cannot observe the authenticity of most ESG claims (Bowler, Castka, and Balzarova, 2017). Voluntary product quality assurance (e.g., certified “cage free egg” labeling), allows consumers to be more confident in their purchases because an independent assurer has verified the production process (e.g., Montiel, Christmann, and Zink, 2019).³ While consumers may hesitate to purchase from companies with questionable reporting practices, due to cascading doubts about the organization's ESG claims, independent assurance of production claims should subdue the adverse effects of restatements by acting as a more reliable surrogate of ESG claims than restatement information. As such, we predict CPI will be higher for restating firms with voluntary ESG product quality assurance than for restating firms without it.⁴

¹ For example, a producer of cage free eggs has more information about whether the eggs were actually cage free compared to a consumer purchasing the eggs. The consumer must rely on the producer's assertion of social responsibility (i.e., the humane treatment of chickens) in the production process.

² Organizational legitimacy refers to a perception that an entity's actions follow moral and regulatory standards for acceptable behavior, including acting in accordance with regulations crafted by governments and professional bodies (Suchman, 1995; Deephouse, Bundy, Tost, and Suchman, 2017; Scott, 1995, 2013; Zimmerman and Zeitz, 2002). By restating its financial statements, the firm fails to meet generally accepted accounting principles (GAAP), thereby diminishing organizational legitimacy.

³ Several examples of quality disclosure are readily available in the market, including *USDA Grade Shields* for eggs produced following U.S. quality standards; *ISO 9001* for quality management system; *FairTrade* certification for socially and environmentally responsible trading and sourcing of materials.

⁴ We note that our interest is ESG product quality assurance (e.g., cage free egg certification), which is similar to an agreed-upon procedures engagement, but is narrower than assurance provided over a company's information disclosures to stakeholders, such as sustainability report assurance.

Finally, companies can obtain ESG product quality assurance from various providers, such as government agencies (e.g., USDA, EPA, etc.) and public accounting firms. We contend consumers will perceive differences in the reliability of ESG product quality assurance dependent upon their involvement in, or proximity to, a financial restatement. That is, when a restatement occurs, reliability ought to be lower when the provider is also the financial statement auditor compared to another public accounting firm not involved in the financial statement audit. Ganguly, Herbold, and Peecher (2007) suggest that failures in one assurance service can affect the perceived reputation of other assurance services by the same firm. In our context, reliability concerns from financial statement audit failures (e.g., a financial restatement), regardless of fault, should transfer to perceptions of other assurance products (e.g., ESG product quality assurance), lessening the beneficial effects. However, consumers will have more confidence in ESG product quality assurance from government agencies or a non-financial statement auditors because those providers are unaffiliated with the financial reporting process and restatements. In the event of a restatement (either error or irregularity), the beneficial effect of ESG assurance on CPI will be higher when provided by a government agency or a non-financial statement auditor compared to ESG assurance provided by the financial statement auditor.

We utilize a 4 × 3 between-subjects experiment to investigate consumers' reactions to negative accounting news. We manipulate restatement type (no restatement, error restatement, and irregularity restatement) and examine the influence of the presence of ESG product quality assurance and the assurance provider. We use a readily apparent, familiar, voluntary ESG product quality assurance mechanism – cage free egg certifications – as our ESG product quality assurance mechanism. Assurance is manipulated as either unassured, producer purported cage free eggs, or third-party assured cage free eggs. We test three assurance providers – the USDA, an audit firm other than the financial statement auditor, and the financial statement auditor. Using Mechanical Turk (MTurk), we identify 741 real-world consumers of cage free eggs and capture both their OL perceptions and CPI.

We find negative accounting news influences CPI, with irregularities leading to lower CPI. In both restatement conditions, CPI are higher with voluntary ESG product quality assurance than without. However, assurance is more effective for error restatements. Consumers are sometimes sensitive to the provider's association with the financial statement audit. For error restatements, ESG assurance is least effective when the provider is also the financial statement auditor. For fraud restatements, ESG assurance improves CPI, but the provider's association with the financial statements does not affect perceptions of ESG assurance reliability as fraud reduces the reliability of assurance in general. Finally, a path model suggests negative accounting events erode perceptions of OL, but assurance lessens the impact of reduced OL on CPI.

Our study is at the intersection of accounting, ESG, and marketing research. Accounting research often focuses on how accounting events affect shareholders, creditors, auditors, and employees (e.g., Collins, Masli, Reitenga, and Sanchez, 2009; Cooper, Dacin, and Palmer, 2013), with little attention to consumers despite the relevance of financial information to consumers (Kachelmeier et al., 1991; Noh et al., 2021). The accounting literature is increasingly interested in stakeholder responses to ESG claims and voluntary ESG assurance (e.g., Liu et al., 2023). Moreover, we contend that accounting researchers could influence the marketing literature because understanding factors that influence CPI is a focus of marketing research (e.g., Grewal and Stephen, 2019). We inform these disciplines by examining how negative accounting events can influence CPI and the role of ESG product quality assurance over credence attributes.

Our study should be of interest to executives and boards. Executives should understand consumers are influenced by negative accounting events, even if they are not *directly* related to ESG claims. Consumers can distinguish the seriousness of these events, penalizing firms more for severe negative events, but voluntary ESG product quality assurance can

shield against these events. Boards should consider that voluntary assurance can benefit brand image, improve consumer sentiment, and minimize market share losses from negative accounting events.

Importantly, consumers pay attention to the assurance provider. Boards and audit firms should be aware that audit failures, which often lead to financial restatements (DeFond and Zhang, 2014), harm organizations' standing with their consumers. Public accounting firms have made a significant push to increase their ESG-related assurance market share (CAQ 2023). Our findings reveal that ESG product quality assurance provided by auditing firms benefits consumers similarly to government agency-provided assurance when financial statements are clean. However, for error restatements, consumers prefer ESG assurance from auditors unaffiliated with the financial statement audit or from government agencies. Our findings highlight the risks of using financial statement auditors as ESG assurance providers. Finally, while negative accounting events are not the only factor in conscientious CPI, accounting-related news does matter to consumers, and ESG product quality assurance helps mitigate some negative reactions.

2. Background and hypothesis development

2.1. Organizational legitimacy

OL is often defined as, "... a generalized perception or assumption that an entity's actions are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (Suchman, 1995, p. 574). More recently, Deephouse et al. (2017) define OL as the perceived appropriateness of an organization to a social system's rules, values, and norms.

OL is influenced by a variety of specific appropriateness dimensions, including regulatory and moral concerns. The moral aspect of OL encompasses judgment about whether the company's conduct is "the right thing to do" (Suchman, 1995; Deephouse et al., 2017), while the regulatory aspect captures the firm's adherence to regulations, rules, standards, or expectations created by governments as well as credentialing and professional bodies (Deephouse et al., 2017; Scott, 1995, 2013; Zimmerman and Zeitz, 2002). Zimmerman and Zeitz (2002) argue that regulatory legitimacy involves both meeting legal requirements to avoid sanctions and adhering to the law's letter and spirit, demonstrating "good corporate citizenship." A financial statement restatement could indicate a lack of moral legitimacy (e.g., if intentional) and always indicates a lack of regulatory legitimacy. By restating financials, the organization admits previous disclosures failed to conform to GAAP and securities laws. This failure to provide reliable financial information challenges perceptions of the organization's corporate citizenship.

Organizational scholars universally acknowledge that legitimacy significantly influences economic exchanges, as stakeholders are more willing to engage with legitimate organizations (Deephouse and Carter, 2005; Deephouse et al., 2017).⁵ For example, Brown and Dacin (1997) find that consumers' perceptions of organizations' actions can influence their attitudes toward the organization's products. These reactions are likely only to exacerbate in the coming years as the proportion of conscientious consumers increases in the marketplace (Brown, 2011). Webster (1975) defines a conscientious consumer as "a consumer who takes into account the public consequences of his or her private consumption or who attempts to use his or her purchasing power to bring about social change (p.188)." As consumers become more conscientious, they incorporate a wider range of information into their purchasing decisions, considering not only how the organization operates (e.g., workplace diversity or equal pay), but also how it produces its products

(Edelman, 2020; PwC, 2021b). For example, conscientious consumers may desire confidence that the eggs they purchase are sourced from legitimate cage free suppliers because other means of production represent flaws in the upstream supply chain (Kingston, 2020). Thus, consumer trust in the legitimacy of various organizational claims is of increasing consequence.

Previous research substantiates that consumers respond to various factors that raise concerns about OL. For example, Creyer and Ross (1996) find that consumers demand price discounts from companies engaging in unethical behavior, such as lying about product efficacy. Folkes and Kamins (1999) show that when a firm commits an ethical breach (e.g., hiring child labor), emphasizing the superior quality of its products does little to enhance consumer attitudes toward the firm or its brands. Mohr and Webb (2005) find that lower levels of corporate social responsibility reduce CPI. Ma and Lee (2014) find that CPI decrease when shoppers learn that retailers have manipulated online reviews. In an accounting context, Kachelmeier et al. (1991) find that consumers are less willing to buy from sellers who opportunistically profit from market events, due to consumers' perceptions of the equity or fairness of a product's price.

2.2. Goods with credence attributes

While all organizations can suffer from negative perceptions of their legitimacy, those selling credence goods are particularly vulnerable. Credence goods are products with attributes that cannot be observed or judged, even after purchase and use (Darby and Karni, 1973). While not in common parlance, consumers are likely familiar with credence goods. For example, "Fair Trade" clothing is a credence good because consumers must trust the company's claim, as they cannot directly observe or determine the fair trade practices used in production – even after purchasing and wearing the clothing. Interestingly, audits are a credence good in that auditees may "not be able to ascertain the extent to which the risk of material misstatement has been reduced, even after the audit is completed" (Causholli and Knechel, 2012, p. 632).

2.3. Surrogate information of credence claims

Credence goods create an asymmetric information environment between producers and consumers. Producers are aware of the actual production quality, but absent third-party assurance (discussed later), consumers must rely on the producer's assertions (Baksi and Bose, 2006; Holland, 2016). When producers have intimate knowledge of a good's true ESG qualities, but consumers cannot independently verify these claims themselves, producers may be incentivized to defraud consumers (Balafoutas and Kerschbamer, 2020; Dulleck and Kerschbamer, 2006).

Consumers are aware of this predicament and base their purchase decisions on subjective beliefs formed by surrogate indicators about a product's true quality (Bonroy and Constantatos, 2008). In uncertain situations, various observable, yet surrogate, signals can influence perceptions of credence claims (Kirmani and Rao, 2000; Nagler, Kronenberg, Kennelly, and Jiang, 2011; Rao and Monroe, 1989). Extant literature suggests that consumers use observable metrics (e.g., country of origin) as surrogates for unobservable product characteristics (e.g., fair trade practices; Quester, Dzever, and Chetty, 2000; Jo, 2005; Johnson and Folkes, 2007). If surrogate information seeds doubt about the reliability of a claim, consumers are less likely to rely on assertions related to the credence good, which results in reduced CPI.

Exposure to negative information about an organization's legitimacy can jeopardize consumer perceptions of credence claims. Accounting events represent one possible information surrogate. For example, negative accounting events are frequently reported by the business press through various media (Drake, Guest, and Twedt, 2014). Literature suggests that information on these platforms influences financial stakeholders' decisions (Fang and Peress, 2009; Lee, Hutton, and Shu, 2015; Elliott et al., 2018). However, few studies consider that consumers

⁵ Deephouse et al. (2017, p. 12) particularly state that "no matter what the components of the marketing mix illegitimate organizations might offer, a large number of stakeholders will not transact with entities that are regarded as illegitimate."

also access this information, which could influence their purchasing decisions (Kachelmeier et al., 1991; Chakravarthy et al., 2014; Noh et al., 2021). Specifically, theory suggests that accounting events could be used as surrogate information about a product's credence attributes.

2.4. Negative accounting events as a credence claim surrogate

Combining OL theory and the credence goods literature, we contend that negative accounting news events (e.g., financial restatements) will impact CPI for goods with ESG product quality claims. Although restatements do not directly indicate whether a product is sustainably sourced, restatements can serve as a surrogate for the reliability of an organization's claims about a product's credence attributes. If consumers doubt the organization's financial statement legitimacy, we expect them to also question ESG-related assertions made by that organization (Nagler et al., 2011; Quester et al., 2000; West et al., 2002).

Accordingly, we argue that, *ceteris paribus*, CPI can be altered by an organization's financial restatement. Specifically, restatement knowledge will adversely affect beliefs and attitudes toward the company's product offerings (Bonroy and Constantatos, 2008; Brown and Dacin, 1997; Jo, 2005; Johnson and Folkes, 2007), resulting in lower CPI for a company that restates its financial reports compared to a company that does not restate, formally stated as.

Hypothesis 1. CPI will be lower for companies that restate their financial reports than those that do not restate.

2.5. Restatement type and CPI

An organization's legitimacy covers a spectrum. At one end, it is legitimate due to appropriate actions and adherence to rules, norms, and values (Suchman, 1995; Deephouse et al., 2017). At the other end, it is illegitimate due to severe misconduct, which warrants rehabilitation or dissolution (Tost, 2011; Deephouse et al., 2017). In between these bounds, legitimacy can be questioned to varying degrees. For restatements, the impact depends on whether a restatement is an error (i.e., *unintentional* misapplications of GAAP) or an irregularity (i.e., *intentional* misreporting by top management, commonly referred to as fraud).

Distinguishing errors from irregularities is crucial because irregularities are more severe. Palmrose et al. (2004) find that stock market reactions to irregularities are about three times more negative than for non-fraud cases. Hennes et al. (2008) show that irregularities are associated with lawsuits, while errors rarely lead to such actions. Their findings also indicate that CEOs and CFOs face harsher penalties for irregularities than for errors. Therefore, irregularities pose a greater threat to the firm's OL, further jeopardizing consumers' perceptions of credence claims.

Furthermore, irregularities threaten a company's moral legitimacy. Concerns about moral legitimacy result from positive normative assessments of whether the organization's actions were "the right thing to do" (Suchman, 1995; Deephouse et al., 2017). A fraud restatement not only raises regulatory legitimacy issues, but also disrupts moral legitimacy by highlighting deceit by key organizational representatives (Hennes et al., 2008; Trompeter, Carpenter, Desai, Jones, and Riley, 2013). From a consumer perspective, diminished moral legitimacy serves as stronger surrogate information about an organization's credence claims, reducing the likelihood that consumers will rely on the company's ESG assertions, which leads to our second hypothesis.

Hypothesis 2. A restatement of financial reports involving irregularities will result in lower CPI than those involving errors.

2.6. The Alleviating effect of voluntary ESG assurance

Given the asymmetry in ESG goods' true traits, consumers seek information to reduce this asymmetry for better purchase decisions (Agarwal and Teas, 2001). Organizations can reduce information

asymmetry in their production process' ESG claims (or any credence attribute) by undertaking voluntary assurance. According to the IAASB, assurance engagements occur when a practitioner obtains evidence to express a conclusion, measured against relevant criteria, designed to enhance users' (other than the responsible party) degree of confidence about an underlying claim (IAASB 2013). Third-party certifications, like the USDA's cage-free egg certification, act as a voluntary assurance of production quality for consumers. Specifically, the IAASB's assurance definition parallels, for example, the USDA's cage free egg certification process (e.g., trained inspectors and evidence from farm visits). The USDA even states it provides this service for producers that want to, "provide additional assurance to their customers of the validity of [the producer's] marketing claims" (USDA, 2023).

Governmental agencies are not the only providers of ESG product quality assurance services. For example, the United Egg Producers, a non-governmental cooperative, offers a cage free certification similar to that of the USDA (United Egg Producers, 2023). Further, an increasing number of global businesses are seeking *FairTrade* certification to ensure compliance with economic, social, and environmental standards (e.g., no child labor; fair prices for local farmers).⁶ Producers of organic fruits can seek voluntary certification from third parties like FairTrade America or the United Nations Food and Agriculture Organization to verify production quality or confirm product claims.

Increasing stakeholder demand for production process verification has led public accounting firms to provide both ESG disclosure and product quality assurance (CAQ 2021). Many organizations now engage private audit firms to validate their socially responsible claims (PwC, 2021a).⁷ These engagements range from attesting to the carbon footprint to verifying the product sourcing claims (IFAC 2023) disclosed in ESG reports as well as marketing materials. For example, KPMG's Origins Asset Visibility service helps agribusinesses transparently communicate their products' ESG credentials to consumers (KPMG, 2023). Deloitte's AI4Animals uses AI to improve animal welfare by detecting issues in production facilities (Deloitte, 2023). PwC's Food Trust Program supports companies in enhancing their food products' distinctive ESG characteristics (PwC, 2023). While public accounting firms' role in ESG disclosure assurance is well known, it is likely that as more ESG product claims are made, these firms will increasingly certify the veracity of these ESG product quality characteristics and claims.

Certifications and their disclosures, known as "labeling" in prior research, are crucial for credence markets. Giannakas (2002, p. 36) suggests, "labeling based on third-party certification is the only feasible alternative to circumventing supply-side failures of markets for organic food since, in its absence, organic food suppliers are not capable of signaling the nature of their product." Voluntary certification allows firms to boost consumer confidence by having an independent assessor verify the production process (Daughety and Reinganum, 2008; Montiel et al., 2019). Certifications also foster positive brand sentiments as consumers appreciate the company's commitment to meet high standards and external validation (Bowler et al., 2017). Prior research finds that voluntary certification positively impacts CPI (Daughety and Reinganum, 2008; Montiel et al., 2019). For instance, Del Giudice et al. (2016) find that consumers are willing to pay more for products from companies with certified anti-food waste measures. Galati et al. (2017) find that *Forest Stewardship Council* certification enhances corporate image and helps establish new customer relationships.

Although most voluntary assurance is non-financial in nature, we

⁶ <https://www.fairtrade.net/about/how-fairtrade-works>.

⁷ Auditors serve a public interest role, have experience and expertise in assessing the reliability of information for decision making, and must adhere to robust independence and quality control requirements (CAQ 2020, 2021). Therefore, audit firms view themselves as well-positioned to provide ESG assurance (CAQ 2023). Organizations agree with these benefits, as 57 % of ESG assurance globally was provided by audit firms in 2021.

expect it to mitigate the effects of restatements on CPI. Given the benefits of voluntary assurance, third party ESG product quality assurance should influence the hypothesized effects (i.e., consumers are less likely to do business with a company that lacks legitimacy in financial reporting). If an independent body assures the company's production process meets ESG standards, the negative impact of restatement information should be mitigated, as the certification serves as a more available and direct surrogate of ESG claims. Thus, we contend that non-financial, voluntary ESG product quality assurance (e.g., a cage free egg certification) will reduce the negative CPI effects generated by financial restatements, which we formally present as.

Hypothesis 3a. For firms with a restatement involving errors, CPI will be higher when firms voluntarily assure their products' ESG claims compared to firms that do not.

Hypothesis 3b. For firms with a restatement involving irregularities, CPI will be higher when firms voluntarily assure their products' ESG claims compared to firms that do not.

2.7. The importance of ESG assurance provider on CPI

To this point, our arguments have focused on the impact of financial restatements and voluntary ESG assurance on perceptions of OL and CPI. Next, we discuss how the mitigating effects of voluntary ESG assurance on negative consumer reactions may depend on the assurance provider's involvement with the financial statement audit.

Organizations can choose ESG assurance providers that are either private firms (e.g., accounting, consulting, or engineering firms) or government agencies (e.g., FDA, USDA). Prior research has investigated the costs and benefits of private versus government-provided assurance (e.g., Branson, Decker, and Green, 2011; Rixom, Rixom, Pippin, and Wong, 2021) and the usefulness of ESG assurance providers to investors (Pflugrath, Roebuck, and Simnett, 2011; Hodge, Subramaniam, and Stewart, 2009). These studies have focused on the impact of consulting versus accounting providers. For example, both Pflugrath et al. (2011) and Hodge et al. (2009) find sustainability information is more credible when assured by professional accountants versus consultants. Birkey, Michelon, Patten, and Sankara (2016) find that hiring an audit firm versus a consulting firm for ESG assurance does not affect a firm's environmental reputation. Only one study has examined using the same auditor to provide both financial and non-financial audit services (Lu, Simnett, and Zhou, 2023), archivally concluding that using the same auditor can result in higher financial reporting quality. We investigate how the ESG assurance provider's involvement, or lack thereof, with the financial statement audit influences the extent to which ESG assurance can mitigate the negative effects of restatements on CPI.

In addition to the general benefits of ESG assurance from an audit firm, a financial statement auditor has intimate knowledge of the client's operations (CAQ 2023; Lu et al., 2023). Consequently, many organizations engage their financial statement auditor for ESG assurance. In 2021, 70 percent of ESG assurance engagements by audit firms were provided by the organization's financial statement auditor (IFAC 2023).⁸ However, we argue that using the same auditor for both financial statement and ESG assurance can be problematic during restatements.

As the audit itself is a credence good (Causholli and Knechel, 2012), regardless of an auditor's actual negligence in a financial restatement, consumers will likely use the restatement diagnostically to appraise the auditor's reliability (Ganguly et al., 2007). We contend that consumers will surrogate observable organizational metrics (e.g., financial restatements) for unobservable service characteristics (e.g., ESG product

quality assurance reliability; Quester et al., 2000; Jo, 2005; Johnson and Folkes, 2007). Restatement knowledge will adversely affect consumers' beliefs about the auditor's ESG assurance reliability (Bonroy and Constantatos, 2008; Brown and Dacin, 1997; Jo, 2005; Johnson and Folkes, 2007). Even if the ESG assurance is reliable, consumers will have salient, surrogate information about the auditor's inability to provide a reliable financial statement opinion. Therefore, when the same provider is used for both financial statement and ESG assurance, and a restatement occurs, we expect consumers to lose confidence in the ESG assurance, reducing CPI.

Unlike financial statement auditors, government agencies are not involved in financial restatements, so the veracity of ESG assurance should not be affected by a restatement. Moreover, government agencies have longstanding expertise in ESG product quality assurance (certifications), potentially making them more reliable than private assurers. Therefore, we predict that CPI will be higher when ESG product quality assurance is provided by a government agency (e.g., the USDA) rather than by the financial statement auditor.

Hypothesis 4a. When there is either an error or irregularity restatement, CPI will be higher for firms with ESG claims voluntarily assured by a government agency (i.e., the USDA) than for firms with ESG claims voluntarily assured by the firm's financial statement auditor.

Finally, some organizations may engage an audit firm other than their financial statement auditor for ESG assurance. Based on our theory regarding government agencies, we expect consumers will not view the financial restatement as a surrogate for the reliability of ESG assurance from an audit firm that is not involved with the financial statement audit. Therefore, we predict CPI will be higher when ESG product quality assurance is provided by an audit firm uninvolved with the financial statement audit than by the financial statement auditor.

Hypothesis 4b. When there is either an error or irregularity restatement, CPI will be higher for firms with ESG claims voluntarily assured by a separate audit firm than for firms with ESG claims voluntarily assured by the firm's financial statement auditor.

3. Methodology

3.1. Participants and design overview

We utilized Mechanical Turk (MTurk) to recruit participants to our study.⁹ To increase our study's external validity, we needed to identify conscientious consumers who were likely to purchase the real-world credence good we utilized in the experiment (i.e., cage free eggs).¹⁰ Of the 3807 participants who began the experiment, 2622 (68.9 %) did not indicate they typically purchased cage free eggs, leaving 1185 (31.1 %) probable conscientious consumers to continue with the experiment. Eighteen of these participants dropped out after reporting their purchasing habits. The remaining 1167 participants completed a 4 × 3 between-subjects experiment in which we manipulated the presence and type of restatement as well as whether and from whom the producer obtained voluntary ESG assurance over sourcing claims. Eliminating participants who failed one or both comprehension checks (69, 5.9 %), botchecks (149, 12.8 %), the certification manipulation check (84, 7.2 %), the assurer manipulation check (55, 4.7 %), the restatement manipulation check (33, 2.8 %), the cage free purchasing verification

⁸ At present, ESG assurance services are not subject to PCAOB independence rules, allowing companies to engage the same auditor to assure ESG claims as audit their financial statements (CAQ 2021).

⁹ The accounting (Owens and Hawkins, 2019) and marketing literatures (Goodman and Paolacci, 2017) agree MTurkers represent appropriate participants for our simple task.

¹⁰ To achieve this objective, potential participants were first presented with a randomized list of 10 unrelated attributes (e.g., "I have traveled abroad," "I prefer tablets over laptops"). One of the attributes listed was, "I typically purchase cage free eggs." Participants who did not indicate that they typically purchased cage free eggs were not allowed to continue with the study.

check (5, 0.4 %), failed to provide complete data (6, 0.5 %), or did not complete the experiment in a reasonable time (25, 2.1 %), resulted in 741 useable responses.^{11,12} The median completion time for the experiment was 8.13 min. We compensated each participant \$1.25 for completing the experiment, which resulted in an average wage of \$9.22 per hour. Participants were, on average 42.69 years old, and 57.4 % identified as female. Participants have a variety of educational backgrounds, 48.2 % were parents, and 50.3 % (49.7 %) purchased only cage free eggs exclusively (purchased both cage free and caged eggs).

3.2. Instructions and procedures

Fig. 1 presents an overview of our experiment. After identifying participants who purchase cage free eggs, participants were informed that the study would ask them to provide their opinions about a hypothetical egg producer (Perfect Hatch, Inc.). All participants began the experiment with background information about the voluntary cage free egg grading process. They were informed egg cartons sold to consumers might be marked as “Cage Free,” indicating hens laying those eggs are not kept in cages. Additionally, some cage free egg producers voluntarily choose to purchase ESG product quality assurance from either the USDA or another provider (e.g., an auditing firm). Participants are told that both the USDA and Assure, LLP, a large auditing firm in the United States, offer such services, which they call their Egg Grading Service or CoopCheck Egg Grading Service, respectively. They are told that if the producer’s eggs meet the USDA or CoopCheck cage free standards, the USDA or Assure, LLP will allow the producer to market its eggs using the appropriate “shield,” which is depicted below in Fig. 2.¹³ Finally, participants are informed that some cage free egg producers decide against undergoing assurance and market their eggs as cage free, but without a cage free grade shield.

Participants are informed that only eggs that are both officially graded and certified by either the USDA or Assure, LLP as sourced from cage free flocks are eligible to use the “Certified Cage Free” USDA or Assure, LLP shield.¹⁴ That is, eggs packed under a USDA or Assure, LLP shield and marketed as “Cage Free” must be verified by the USDA or Assure, LLP through onsite farm visits to confirm that the eggs are sourced from laying hens that are, indeed, kept in the appropriate environment. Before proceeding with the study, we require participants to demonstrate their understanding of the assurance process by answering two comprehension check questions about the process.

¹¹ We ask two comprehension check questions after detailing the cage free certification process. Both were true or false. The first stated, “All cage free eggs are automatically certified by either the USDA or Assure, LLP” (false). The second stated, “All USDA or Assure, LLP certified cage free eggs (i.e., have the “Certified Cage Free” USDA or Assure, LLP grade shield) are from producers who have undergone on-site inspections” (true). The restatement manipulation check required participants to identify whether the financial statements, “have been assessed to be accurate and reliable,” “included an unintentional error by management,” or “were purposefully manipulated by management.” The certification manipulation check required participants to identify whether the eggs in the experiment were “cage free eggs, USDA or Assure, LLP certified” or “cage free eggs, but not USDA or Assure, LLP certified.” Finally, the assurer manipulation check required participants to identify whether the organization that certified Perfect Hatch’s cage free claims is “the same organization” or “different than the organization” that audited its financial statements.

¹² We removed participants who took less than 4 min or more than 120 min to complete the 10-min task. The 4 x 3 ANOVA results are robust to the inclusion of these time-related exclusions, except that the 4x3 interaction becomes insignificant ($p = 0.168$).

¹³ We use the USDA’s cage free certification as our proxy for voluntary third-party assurance because it represents one example that is readily apparent, familiar, and understandable to most consumers.

¹⁴ Our description of the grading process and shield use eligibility is consistent with description on the USDA’s website: <https://www.ams.usda.gov/publications/content/cage-free-verification-usda-graded-shell-eggs>.

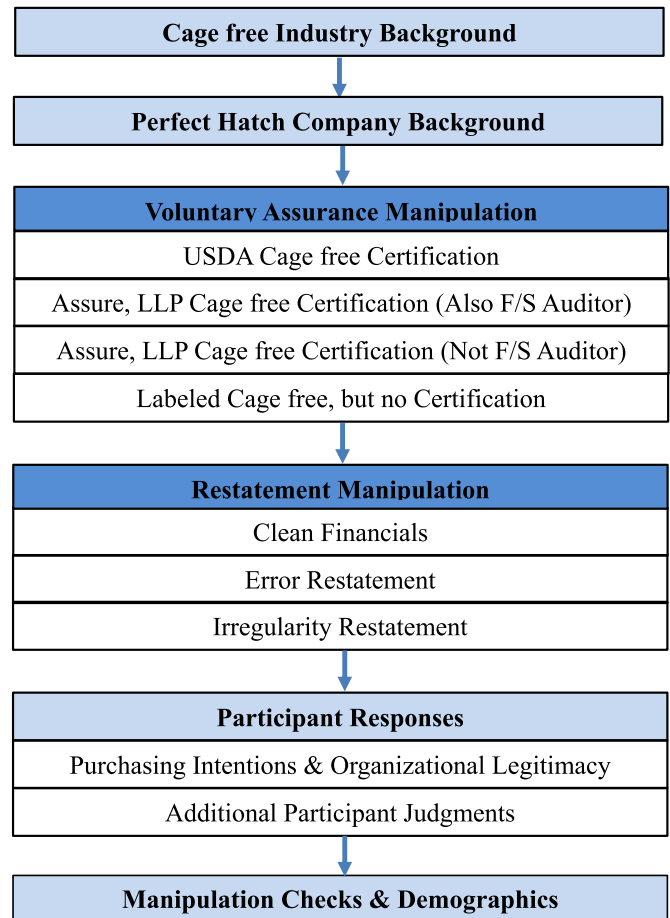


Fig. 1. Experiment overview.

Next, participants were provided background information on Perfect Hatch, a hypothetical publicly traded agricultural producer. Participants were then exposed to the certification manipulation before reading information about Perfect Hatch’s financial statements. Subsequent information included further context germane to the manipulation of the assurance provider (i.e., whether the cage free assurance provider also audited Perfect Hatch’s financial statements). Participants were then exposed to the restatement manipulation before being asked a series of questions about their purchasing intentions (Samu and Wymer, 2009) and OL perceptions (Stathopoulou and Balabanis, 2016; Nuttavuthisit and Thøgersen, 2017), manipulation checks questions, and demographic questions.

3.3. Independent variables

We manipulate *Assurer* (no assurer, USDA, financial statement auditor, not financial statement auditor) between participants. In the no assurer condition, participants were informed,

The cartons of Perfect Hatch eggs are labeled as ‘Cage Free’ but are not labeled with an independent Grade Shield. Hence, although Perfect Hatch claims that their laying hens are kept cage free, there is no confirmation from an independent organization.

In the USDA (financial statement auditor, not financial statement auditor) conditions, participants were informed that,

The cartons of Perfect Hatch eggs are labeled as ‘Cage Free’ and are also labeled with a USDA (Assure, LLP CoopCheck) Grade Shield. Hence, Perfect Hatch’s claims that their laying hens are kept cage free have been inspected and confirmed by the USDA (Assure, LLP).



Fig. 2. USDA Egg Grading and Assure, LLP CoopCheck Cage Free Egg Shield.

Those in the financial statement auditor condition later learn that Assure, LLP also performed Perfect Hatch's financial statement audit,

As a publicly traded company, Perfect Hatch is required to submit its audited financial statements to the Securities and Exchange Commission (SEC) on a quarterly and annual basis. Accordingly, Perfect Hatch chose to engage Assure, LLP to audit their financial statements. Therefore, the organization that certified Perfect Hatch's cage free claims is the same organization that audited its financial statements.

Those in the not financial statement auditor condition later learn that Assure, LLP did not perform Perfect Hatch's financial statement audit,

As a publicly traded company, Perfect Hatch is required to submit its audited financial statements to the Securities and Exchange Commission (SEC) on a quarterly and annual basis. Accordingly, Perfect Hatch chose to engage Jones & Smith to audit their financial statements. Therefore, the organization that certified Perfect Hatch's cage free claims is different than the organization that audited its financial statements.

We also manipulate *Restatement* (no restatement, error, or irregularity) between participants. Participants were told they recently read a write-up about Perfect Hatch in the business section of a newspaper. Participants in the no restatement condition learned that,

To-date, Perfect Hatch has submitted its financial statements to the SEC without any issues. The financial statements released by the company have been assessed to be accurate and reliable.

Participants in the error restatement condition learned that,

Recently, Perfect Hatch announced a restatement of its financial statements. A restatement indicates that previously submitted financial statements were not accurate and need to be corrected. After an investigation, the misstatement of financials was deemed to be an unintentional error by senior management of the company.

Participants in the irregularity restatement condition learned that,

Recently, Perfect Hatch announced a restatement of its financial statements. A restatement indicates that previously submitted financial statements were not accurate and need to be corrected. After an investigation, the misstatement of financials was deemed to be a deliberate act by senior management of the company. The senior management team intentionally manipulated its accounting numbers in order to obtain their bonus compensation.

3.4. Dependent variable

Our primary dependent variable is based on prior consumer purchasing intention studies (e.g., Michaelidou and Hassan, 2008; Samu and Wymer, 2009; Yeon Kim and Chung, 2011; Van Quaquebeke et al., 2019) and asked participants, "Would you consider purchasing Perfect

Hatch eggs?" measured on a seven-point Likert-type scale with "1 = Definitely would not consider" and "7 = Definitely would consider." Based on research, we utilized an alternative dependent variable, which asked participants "I would want to purchase Perfect Hatch eggs in the near future," measured on seven-point Likert-type scale with "1 = Strongly disagree" and "7 = Strongly agree."¹⁵

Additionally, we collected price sensitivity information by asking, compared to other similar egg products, what price participants would be willing to pay for Perfect Hatch eggs ("1 = significantly less" to "7 = significantly more").¹⁶ Further, we asked several OL measures to understand consumer perceptions. Based on prior consumer trust literature (Stathopoulou and Balabanis, 2016; Nuttavuthisit and Thøgersen, 2017), we captured four measures of consumer trust in Perfect Hatch and perceptions of management integrity.¹⁷ Finally, we asked participants their views about the reliability of certifications from the USDA and Assure, LLP. All variables were measured on seven-point Likert-type scales.

4. Results

4.1. Hypothesis tests

Our primary dependent variable is CPI. We report descriptive statistics for this variable in Table 1, Panel A and visually depict the pattern of means in Fig. 3. Before testing our hypotheses, we estimate a 4×3 ANOVA to examine the effects of assurer and restatement on CPI. The results presented in Table 1, Panel B indicate the overall model is significant (omnibus $F = 53.81, p < 0.001$) with significant main effects for assurer ($F = 44.45, p < 0.001$) and restatement ($F = 229.57, p < 0.001$), and a marginally significant interaction ($F = 1.78, p = 0.100$).¹⁸ Untabulated results also indicate homogeneity of variance is not supported (Levene's statistic = 6.94, $p < 0.001$).

Having established that significant mean differences (*MD*) exist between some of the experimental cells, we test our hypotheses using planned comparisons and report results assuming unequal variance. Hypothesis tests are presented in Table 1, Panel C.

H_1 predicts CPI will be lower for restating companies than for companies that do not restate. The mean patterns depicted in Fig. 3 are consistent with our prediction that CPI will be lower after a restatement

¹⁵ Using purchasing in the analyses yields almost identical results with respect to sign, magnitude, and significance for all hypotheses tests.

¹⁶ Using price in the analyses yields almost identical results with respect to sign, magnitude, and significance for all hypotheses tests.

¹⁷ We asked, "Perfect Hatch is providing truthful information about its egg products," "Perfect Hatch is honest with its customer," "Perfect Hatch keeps its customers' best interests in mind when selling its products" – all measured from strongly disagree to strongly agree. We also asked, "How do you perceive the integrity of Perfect Hatch's management?", measured from very low integrity to very high integrity.

¹⁸ All p-values are one-tailed unless otherwise specified.

Table 1

Descriptive statistics, two-way ANOVA and planned comparisons.

Panel A: Descriptive Statistics of CPI – Weighted and Unweighted Means (SD) [n] {Reference}						
	No Restatement	Error Restatement	Irregularity Restatement	Weighted Row Means	Planned Comparison Weighted Restatement Means ^{b,c}	Weighted
NoAssurer	4.61 (1.45) [77]	4.21 (1.64) [61] {B}	2.38 (1.18) [58] {H}	3.83 (1.72) [196]	3.30 (1.43) [2]	
USDA	6.24 (0.86) [66]	5.61 (1.13) [57] {C}	3.48 (1.68) [62] {I}	5.12 (1.74) [185]	4.55 (1.44) [2] {N}	
FSAuditor	5.93 (1.18) [57]	5.11 (1.69) [57] {D}	3.68 (1.63) [60] {J}	4.89 (1.78) [174]	4.40 (1.66) [2] {O}	
Not FS Auditor	6.23 (0.92) [66]	5.76 (1.17) [62] {E}	3.34 (1.57) [58] {K}	5.17 (1.75) [186]	4.55 (1.38) [2] {P}	
Weighted Column Means	5.70 (1.34) [266]	5.17 (1.55) [237]	3.23 (1.60) [238]	4.74 (1.83) [741]	4.20 (1.58) [2] {Q}	
Planned Comparison Weighted Column Means ^c	5.75 (1.14) [4] {A}	5.17 (1.43) [4] {F}	3.22 (1.53) [4] {L}			
Planned Comparison Weighted Assured Means ^a	6.13 (0.99) [3]	5.49 (1.35) [3] {G}	3.50 (1.63) [3] {M}			

Panel B: Two-Way ANOVA					
Source	Sum of Squares	df	Mean Squares	F-Statistic	p-value
Omnibus	1110.24	11	100.93	53.81	<0.001
Assurance	250.12	3	83.37	44.45	<0.001
Restatement	861.23	2	430.61	229.57	<0.001
Assurance x Restatement	20.04	6	3.34	1.78	0.100
Error	1367.45	729	1.88		

Panel C: Planned Comparisons								
Test	Comparison Description	Reference	Means	Difference	df ^d	SE	t-value	p-value
H1	No Restatements vs Restatements	{A} {Q}	5.75 4.20	-1.55	594	0.10	-15.50	<0.001
H2	Error Restatements vs Irregularity Restatement	{F} {L}	5.17 3.22	-1.95	428	0.14	-13.93	<0.001
H3a	No Assurer Error Restatements vs Assured Error Restatements	{B} {G}	4.21 5.49	1.28	89	0.23	5.57	<0.001
H3b	No Assurer Irregularity Restatements vs Assured Irregularity Restatements	{H} {M}	2.38 3.50	1.12	131	0.20	5.60	<0.001
H4a	USDA Restatements vs FS Auditor Restatements	{N} {O}	4.55 4.40	-0.15	217	0.20	-0.75	0.223
H4a	FS Auditor Error Restatements vs USDA Error Restatements	{D} {C}	5.11 5.61	0.50	97	0.27	1.85	0.034
H4a	FS Auditor Irregularity Restatements vs USDA Irregularity Restatements	{J} {I}	3.68 3.48	-0.20	119	0.30	-0.67	0.748
H4b	FS Auditor Restatements vs Not FS Auditor Restatements	{O} {P}	4.40 4.55	0.15	214	0.20	0.75	0.227
H4b	FS Auditor Error Restatements vs Not FS Auditor Error Restatements	{D} {E}	5.11 5.76	0.65	98	0.27	2.41	0.009
H4b	FS Auditor Irregularity Restatements vs Not FS Auditor Irregularity Restatements	{J} {K}	3.68 3.34	-0.34	116	0.30	-1.13	0.870

Panel B p-values are two-tailed. Panel C p-values are one-tailed.

CPI (consumer purchasing intentions) was measured by asking participants, “Would you consider purchasing Perfect Hatch eggs?” measured on a seven-point Likert-type scale with “1 = Definitely would not consider” and “7 = Definitely would consider.”

Note: Assurance was manipulated as either no assurer or one of three external assurers: USDA, FS auditor, or Not FS auditor. Participants in the no assurer condition were informed, “The cartons of Perfect Hatch eggs are labeled as “Cage free” but are not labeled with an independent Grade Shield certification. Hence, although Perfect Hatch claims that their laying hens are kept cage free, there is no confirmation from an independent organization.” Participants in the external assurer conditions were informed, “The cartons of Perfect Hatch eggs are labeled as Cage free” and are also labeled with a USDA Grade Shield (Assure, LLP CoopCheck Grade Shield). Hence, Perfect Hatch’s claims that their laying hens are kept cage free have been inspected and confirmed by the USDA (Assure, LLP).” All participants were informed, “As a publicly traded company, Perfect Hatch is required to submit its audited financial statements to the Securities and Exchange Commission (SEC) on a quarterly and annual basis.” Participants in the no assurer, USDA, and different auditor conditions were informed, “Accordingly, Perfect Hatch chose to engage Jones &

Smith to audit their financial statements. Therefore, the organization that certified Perfect Hatch's cage free claims is different than the organization that audited its financial statements." Participants in the same auditor condition were informed, "Accordingly, Perfect Hatch chose to engage Assure, LLP to audit their financial statements. Therefore, the organization that certified Perfect Hatch's cage free claims is the same organization that audited its financial statements. Restatement was manipulated at three levels – no restatement, error restatement, and irregularity restatement. No restatement condition participants were informed, "To-date, Perfect Hatch has submitted its financial statements to the SEC without any issues. The financial statements released by the company have been assessed to be accurate and reliable." Error restatement condition participants were informed, "Recently, Perfect Hatch announced a restatement of its financial statements. A restatement indicates that previously submitted financial statements were not accurate and need to be corrected. After an investigation, the restatement of financials was deemed to be an unintentional error by senior management of the company." Irregularity restatement condition participants were informed, "Recently, Perfect Hatch announced a restatement of its financial statements. A restatement indicates that previously submitted financial statements were not accurate and need to be corrected. After an investigation, the restatement of financials was deemed to be a deliberate act by senior management of the company. The senior management team purposely manipulated its accounting numbers in order to obtain their bonus compensation."

^a Means include only assured cells (i.e., USDA, FS Auditor, Not FS Auditor).

^b Means include only restatement cells (i.e., Error Restatement and Irregularity Restatement).

^c Planned comparisons, like those we detail in Panel C, use weighted means in their calculations. To reconcile the mean differences detailed in Panel C to the means we present in Panel A, we detail the necessary weighted means. Weighted means are the simple averages of the applicable descriptive means.

^d Planned comparisons do not meet the homogeneity of variance assumption. We use the Welch-Satterthwaite correction to estimate degrees of freedom assuming unequal variance.

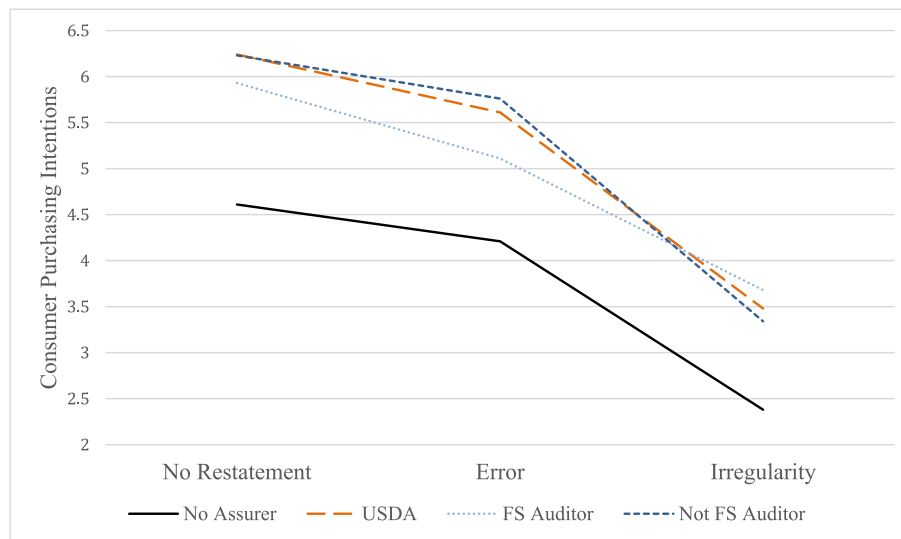


Fig. 3. CPI by assurance and restatement type.

(whether due to error or fraud) than when no restatement occurs. We test H_1 using planned comparisons and weighted means shown in Table 1, Panel C. Consistent with H_1 , we find a significant negative effect of restatement on CPI ($MD = -1.55, p < 0.001$).

H_2 predicts a restatement involving irregularities will result in lower CPI than those involving errors. The mean patterns depicted in Fig. 3 are consistent with this prediction in that irregularity CPI is consistently and starkly lower than error CPI. As shown in Table 1, Panel C and consistent with H_2 , we find CPI for restatements involving irregularities are lower than for restatements involving errors ($MD = -1.95, p < 0.001$). Taken together, these results suggest that conscientious consumers' purchasing intentions for credence goods are not only sensitive to financial restatements, but are also sensitive to the severity of the restatement.

H_{3a} (H_{3b}) predicts for firms with error (irregularity) restatements, CPI will be higher for firms who voluntarily assure their product's ESG product quality claims than for firms without voluntary assurance. Again, the mean patterns illustrated in Fig. 3 suggest a pattern consistent with our prediction in that when an error or irregularity restatement occurs, any form of voluntary ESG product quality assurance results in higher CPI compared to when no assurance is provided. Consistent with both hypotheses, as presented in Table 1, Panel C, we find that, in the presence of an error or irregularity restatement, CPI are greater for assured products than for unassured products ($MD_{Err} = 1.28, p_{Err} < 0.001$; $MD_{Irr} = 1.12, p_{Irr} < 0.001$). The result for H_{3b} (when an irregularity has occurred) is noteworthy, because though consumers are aware of management's willingness to deceive financial statement auditors,

consumers still assign some value to ESG product assurance. Taken together, our results indicate voluntary ESG product quality assurance lessens the negative CPI effects of both error and irregularity restatements.

H_{4a} predicts when there is either an error or irregularity restatement, CPI will be higher for firms with ESG product quality claims voluntarily assured by a government agency than for firms assured by their financial statement auditor. A visual examination of Fig. 3 suggests that our mean patterns are consistent with our prediction for error restatements, but not for irregularity restatements. Specifically, when we aggregate restatement types, we find no significant difference in CPI when a firm assures its ESG product claims with a government agency compared to its financial statement auditor ($MD = -0.15, p = 0.223$). However, consistent with H_{4a} , when a firm experiences an error restatement, we find CPI are higher when a government agency assures a firm's ESG product quality claims compared to when the firm utilizes its financial statement auditor to provide ESG assurance ($MD = 0.50, p = 0.034$). However, inconsistent with H_{4a} , we find no difference in the effect of the assurance provider on CPI when a firm experiences an irregularity restatement ($MD = -0.20, p = 0.748$). We discuss these two findings further at the conclusion of this subsection.

H_{4b} predicts that when there is either an error or irregularity restatement, CPI will be higher for firms with ESG product quality claims voluntarily assured by a separate audit firm than by their financial statement auditor. A visual examination of Fig. 3 suggests a similar mean pattern to H_{4a} , in that our mean patterns are consistent with our

prediction for *error* restatements, but not for *irregularity* restatements. Again, when we aggregate restatement types, we find no significant difference in CPI when a firm assures its ESG product claims with a separate audit firm compared to its financial statement auditor ($MD = 0.15$, $p = 0.227$). However, consistent with H_{4b} , we find when a firm experiences an *error* restatement, CPI are significantly higher when a separate audit firm assures a firm's ESG claims compared to its financial statement auditor ($MD = 0.65$, $p = 0.009$). However, we again find no difference in the effect of the assurance provider on CPI when a firm experiences an irregularity ($MD = -0.34$, $p = 0.870$).

Finally, although not hypothesized, we perform two untabulated supplemental tests to (1) examine if consumers react differently to a government agency versus an audit firm that is not the financial statement auditor providing ESG assurance and (2) determine whether assurance increases CPI absent a restatement. First, as displayed in Fig. 3, mean patterns for the governmental and non-financial statement auditor assurance providers suggest almost identical CPI across all conditions. Consistent with that suggestion, we find no difference in CPI after either an error ($MD = 0.14$, $p = 0.496$, two-tailed) or irregularity restatement ($MD = -0.14$, $p = 0.640$, two-tailed). Second, as depicted in Fig. 3, there is a substantial increase in CPI in response to ESG product quality assurance – even when a restatement has not occurred. Specifically, we find greater CPI when voluntary ESG product quality assurance is present compared to when it is absent ($MD = 1.52$, $p < 0.001$, two-tailed). When investigating the individual voluntary assurance providers, all providers resulted in significantly higher CPI compared to when assurance is not provided (all p -values < 0.001). These results align with the existing theory of organizations signaling their OL by hiring assurers for their product quality claims (e.g., Brown-Liburd and Zamora, 2015; Hoang and Trotman, 2021).

4.2. Hypothesis test summarization

Together, our analyses suggest consumers are not only responsive to the knowledge and severity of financial restatements (H_1 and H_2) and ESG product quality assurance (H_3), but also that the *assurance provider* exerts influence on consumer decision-making in certain circumstances (H_4). Specifically, when a credence good producer experiences a restatement, CPI decrease. We contend (and analyze in supplemental analyses below) that this effect occurs because consumers' perceptions of OL decrease. Further, we find that CPI decrease more significantly when a restatement is due to an irregularity rather than when an error. Additionally, ESG assurance mitigates the effects of restatements on CPI, regardless of restatement severity. This should inform boards and management that voluntary ESG product quality assurance can reduce consumer fallout resulting from negative accounting news.

Importantly, the mitigating effect of ESG product quality assurance depends on the provider and the severity of negative accounting news. We find that CPI are lower when a firm uses its financial statement auditor for ESG assurance compared to another audit firm or governmental agency. This is because the auditor's involvement (regardless of actual fault) in a restatement can undermine the reliability of their ESG assurance claims. Untabulated results show that consumers perceive ESG assurance from the financial statement auditor as less reliable ($M = 5.23$) than from a different audit firm ($M = 5.68$, $p = 0.068$, two-tailed) or the USDA ($M = 6.07$, $p = 0.001$, two-tailed). Organizations should consider this when deciding whether to retain their financial statement auditor for ESG assurance.

For *fraud* restatements, the assurance provider does not significantly influence CPI. This likely occurs because consumers view all assurance services as less reliable when fraud is involved, due to management's demonstrated willingness to deceive. We tested this by comparing consumers' perceptions of the USDA's ESG assurance reliability in error versus irregularity restatements. Because the USDA is unaffiliated with financial reporting, any decrease in reliability perceptions in the fraud condition reflects concerns about management (e.g., willingness to

deceive). Untabulated results show that perceived USDA reliability is lower in irregularity restatements ($M = 5.47$) compared to error restatements ($M = 6.07$, $p = 0.016$, two-tailed). In summary, while ESG product quality assurance improves CPI in fraud conditions, consumers' perceptions of ESG assurance reliability are not influenced by the provider's proximity to the financial statement audit, as fraud generally reduces assurance reliability.

4.3. Supplemental analyses

To test our theory that restatements influence consumers' perceptions of OL, we estimate an OL score using the average of the four OL measures previously discussed. We conduct a 4×3 ANOVA and find almost identical mean patterns for OL as we observe for CPI. Re-estimating the planned comparisons from H_1 and H_2 using OL as the dependent variable, we find that OL perceptions are significantly lower for companies that restate their financials ($MD = -1.74$, $p < 0.001$), and even lower for irregularity restatements compared to error restatements ($MD = -2.09$, $p < 0.001$). These results support our theory that restatements influence OL perceptions, with consumers factoring in the severity of the event.

4.3.1. ESG assurance and product quality

To investigate further how ESG assurance enables consumers to separate OL perceptions from production and/or product quality perceptions, we use PROCESS (Hayes, 2018) to estimate the moderated mediated path model shown in Fig. 4.¹⁹

For credence goods, product quality is not easily ascertained, even after purchase and use (Darby and Karni, 1973). Without additional information, consumers rely on surrogate indicators (Bonroy and Constantatos, 2008). Restatements should decrease OL perceptions, negatively impacting CPI (Deephouse and Carter, 2005; Deephouse et al., 2017). Thus, we expect restatements to have a negative indirect effect on CPI through OL, with greater effects as restatement severity increases. Importantly, assurance provides information about the production process (Montiel et al., 2019), helping consumers divorce product quality beliefs from OL perceptions. ESG product quality assurance addresses product claim concerns, but not OL traits. As such, we expect assurance to affect the ("backside") relationship between OL and CPI in our model, since assurance should not influence the effects of restatements on OL, but rather the effects of OL on CPI. Stated specifically, assurance ought to lessen the negative indirect effect of restatements on CPI. Accordingly, we use PROCESS Model 14 (Hayes, 2018).

Table 2 presents the unstandardized results of our path model estimations showing restatements indirectly reduce CPI by eroding OL perceptions (all $p < 0.10$), with the negative effect increasing as restatement severity increases. Certification by any assurance provider significantly moderates this negative effect ($p < 0.100$). Compared to no assurer condition, the USDA and the non-financial statement auditor conditions show a significant index of moderated mediation ($p < 0.100$), but not for the financial statement auditor condition. In summary, negative accounting news harms OL perceptions, decreasing CPI. ESG product quality assurance mitigates, but does not eliminate, this negative impact. While any type of external assurance provides benefits, assurance by an entity other than the financial statement auditor is the most effective.

In summary, assurance boosts consumer confidence in credence ESG traits, reducing the need for consumers to rely on surrogate OL proxies. Assurance increases confidence in the credence trait when overall OL perceptions are eroded. While assurance protects against effects on CPI, it does not mitigate damage to consumers' overall OL perceptions.

¹⁹ As both restatement and assurer are categorical manipulated variables, we estimate a series of dummy coded models to test the indirect effects of restatement type on purchasing intentions, conditioned on assurer.

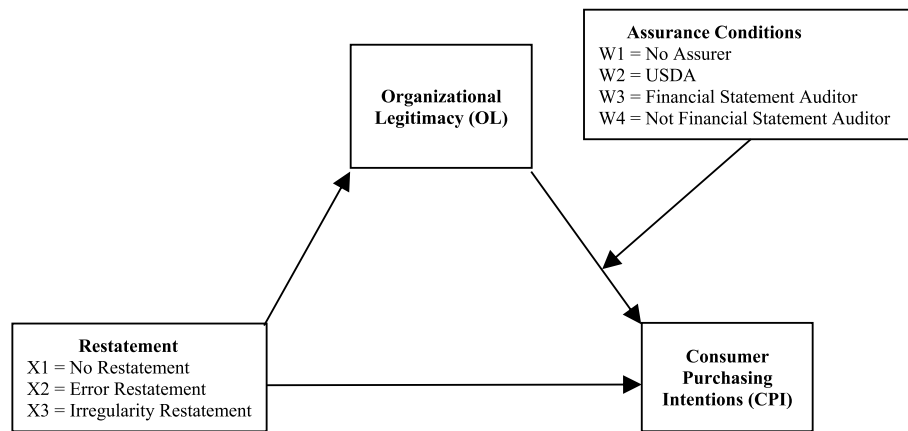


Fig. 4. Conditional indirect effect path model.

Table 2

Moderated mediation path model: Unstandardized path coefficients (standard error) [lower and upper confidence level limits] of 90 % confidence interval.

Source	No Restatement vs Error	No Restatement vs Irregularity	Error vs Irregularity
Direct Path Effects			
Restate → OL	-0.65 (0.12) [-0.84 -0.46]	-2.73 (0.12) [-2.92 -2.54]	-2.08 (0.12) [-2.28 -1.88]
OL → CPI	0.94 (0.05) [0.86 1.02]	0.94 (0.05) [0.86 1.02]	0.94 (0.05) [0.86 1.02]
Restate → OL → CPI	-0.61 (0.11) [-0.79 -0.43]	-2.56 (0.16) [-2.82 -2.31]	-1.95 (0.15) [-2.21 -1.71]
Restate → CPI	0.02 (0.09) [-0.13 0.16]	-0.16 (0.12) [-0.36 0.03]	-0.18 (0.11) [-0.35 -0.01]
Conditional Indirect Effects			
No Assurer	-0.61 (0.11) [-0.79 -0.43]	-2.56 (0.16) [-2.82 -2.31]	-1.95 (0.15) [-2.21 -1.71]
USDA	-0.52 (0.10) [-0.68 -0.36]	-2.18 (0.16) [-2.45 -1.92]	-1.66 (0.14) [-1.90 -1.43]
Financial Statement Auditor	-0.56 (0.10) [-0.73 -0.39]	-2.35 (0.14) [-2.59 -2.11]	-1.79 (0.13) [-2.01 -1.58]
Not Financial Statement Auditor	-0.53 (0.10) [-0.69 -0.37]	-2.23 (0.15) [-2.48 -1.99]	-1.70 (0.14) [-1.94 -1.48]
Index of Moderated Mediation			
No Assurer - USDA	0.09 (0.04) [0.03 0.16]	0.38 (0.16) [0.12 0.65]	0.29 (0.13) [0.09 0.50]
No Assurer - Financial Statement Auditor	0.05 (0.04) [-0.01 0.11]	0.21 (0.15) [-0.03 0.46]	0.16 (0.11) [-0.02 0.35]
No Assurer - Not Financial Statement Auditor	0.08 (0.04) [0.02 0.15]	0.33 (0.15) [0.07 0.58]	0.25 (0.12) [0.06 0.45]
USDA - Financial Statement Auditor	-0.04 (0.04) [-0.11 0.02]	-0.17 (0.16) [-0.42 0.09]	-0.13 (0.12) [-0.33 0.07]
USDA - Not Financial Statement Auditor	-0.01 (0.04) [-0.08 0.05]	-0.05 (0.17) [-0.33 0.22]	-0.04 (0.13) [-0.25 0.17]
Financial Statement Auditor - Not Financial Statement Auditor	0.03 (0.04) [-0.03 0.09]	0.12 (0.15) [-0.13 0.36]	0.09 (0.11) [-0.10 0.27]

Organizational Legitimacy is the average of participants' responses to "Perfect Hatch is providing truthful information about its egg products", "Perfect Hatch is honest with its customers", "Perfect Hatch keeps its customers' best interests in mind when selling its products", and "How do you perceive the integrity of Perfect Hatch's management?"

5. Conclusion

We investigate whether negative accounting news negatively affects CPI. We further examine whether obtaining voluntary ESG assurance by a third party can lessen such erosion and whether the assurance provider (e.g., USDA, financial statement auditor, non-financial statement auditor) influences the efficacy of the assurance. Our setting focuses on producers that claim credence traits (e.g., ESG claims), which are particularly sensitive to consumers' OL perceptions. Even though negative accounting events do not directly tie to production quality, they serve as surrogate indicators of OL and thus are used as a production process indicator.

In an experiment, we find that organizations can signal OL by assuring its ESG product quality claims, even without a restatement. However, CPI decrease when consumers learn of restatements, with CPI being lower for irregularities than errors. Voluntary ESG product quality assurance can mitigate the negative effect of restatements on CPI. CPI are higher with ESG assurance than without, for both error and irregularity restatements. The beneficial effect of assurance is smaller for irregularities than for errors. Mediation results show that consumers' OL concerns arise with restatements, but assurance mitigates the negative effects on CPI.

Of note, the mitigating effect of assurance depends on the provider and the significance of the negative accounting news. For *error*

restatements, CPI are lower when the financial statement auditor provides ESG assurance, as their involvement (regardless of actual fault) in the restatement jeopardizes the perceived reliability of ESG assurance. For *fraud* restatements, while ESG assurance improves CPI compared to when there is no assurance, the provider's proximity to the financial statement audit does not influence reliability perceptions, because fraud reduces the reliability of third-party assurance, in general, due to management's willingness to deceive.

Our study bridges accounting, ESG, and marketing research by examining whether real-world, conscientious consumers care about a company's negative accounting news when purchasing credence products. While accounting scholars have focused on the impacts of negative accounting events on shareholders, creditors, auditors, employees, and regulators, we urge further investigation into their relevance for consumers. Our results suggest that as credence traits, such as ESG claims, become more prominent, CPI will depend on consumers' trust in these ESG claims. Our results suggest that non-financial, third-party assurance over production-related ESG claims can act as a type of insurance, protecting organizations from the impacts of negative accounting news events on CPI.

Our findings are relevant to boards and other stakeholders. Results suggest that organizational ESG reputations could be jeopardized by the actions of a few organizational actors (e.g., management). Boards should protect shareholder interests by incorporating voluntary third-party

assurance for any credence claims, especially ESG claims. Moreover, our results can guide boards in selecting an assurance provider.

Our findings have certain limitations. It is challenging to determine how consumers weigh negative accounting events against factors like product loyalty and purchasing habits. Future research could explore this weighting. While we do not claim that adverse accounting news is the most, or only, influential factor in CPI, our study provides evidence that damaging accounting-related news does matter to consumers.

While our results show the effects of negative accounting news and ESG assurance on CPI, voluntary assurance is not cost-free. We did not consider the costs of establishing, maintaining, and monitoring a certified product. Future research could evaluate these costs. Additionally, our research focuses on industries producing goods with credence attributes, but the results may apply to non-credence goods as well. Further research should investigate how negative accounting news influences CPI for non-credence goods.

Next, our study compares the absence of assurance to voluntary assurance by different parties. We cannot assess if similar benefits would arise in a mandatory assurance setting. While mandatory assurance is beyond our study's scope, Lyman (2023) provides some insight into this important question, finding that investor reactions to voluntary and mandatory assurance are generally similar in investment decisions. We believe our findings would likely hold in a mandatory environment, but future research should investigate how regulatory mandates might influence these findings.

Second, our study's conceptualization of ESG assurance is related to product quality (e.g., cage-free chickens) assurance, similar to an agreed-upon procedures engagement (AT Section 201). Though product quality claims appear in sustainability reports, product quality assurance is narrower than assurance over a company's information disclosures, such as ESG sustainability reports. Though we do not expect directional differences, the magnitude of the effects we observe for ESG product quality assurance may not fully apply to ESG information assurance (e.g., sustainability disclosures). Future research should explore the differential impacts of ESG disclosure assurance and ESG product quality assurance on stakeholders' judgments.

Finally, to enhance our experimental case, we recruited consumers willing to pay a premium for cage free eggs. Our findings may not fully generalize to all consumers, especially those who do not prioritize cage free eggs. However, our theoretical framework suggests similar effects would occur "on average" if all egg consumers were included, though responses from less concerned consumers would be more muted. Future research should explore how different consumer segments respond to assurance claims, considering variations in consumer priorities.

Our results could contribute to further research on consumer reactions to negative accounting news. As consumers become more aware of organizations' ESG stances and business practices through social media, the ethical conduct of accounting processes (e.g., gender compensation parity, board diversity) may become more prominent and influence consumer perceptions.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.aos.2025.101599>.

Data availability

Data will be made available on request.

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