The Role of Catering Incentives in ESG Disclosure

Lee, King Fuei

Schroder Investment Management

2023

The Role of Catering Incentives in ESG Disclosure

King Fuei LEE[1]

Schroder Investment Management

Forthcoming in International Journal of Disclosure and Governance

Abstract

This paper introduces a catering hypothesis of ESG disclosure, where managers adjust their disclosure policies based on investor valuation of high-disclosure companies. The study examines 2,207 US-listed firms from 2005-2022, and finds a significant positive relationship between the ESG disclosure premium and firm ESG reporting. Managers respond to prevailing investor demand for ESG data by disclosing more when investors place a stock price premium on companies with high disclosure levels and disclosing less when investors prefer companies with low disclosure levels. This research enriches sustainability accounting literature by exploring the impact of managerial decision-making and investor demand on ESG disclosure, providing insights for stakeholders and policy development. It also expands understanding of the connection between corporate policy, sustainability, and catering considerations, benefiting stakeholders, directors, and investors interested in improving ESG practices and capital allocation for sustainable development.

Keywords: ESG disclosure, ESG reporting, sustainability reporting, catering incentives, catering effects, disclosure premium

[1] King Fuei Lee, Schroder Investment Management, 138 Market Street #23-01 CapitaGreen Singapore 048946, Tel: (+65) 6800 7000, Fax: (+65) 6535 3486, Email: king.lee@schroders.com

1. Introduction

The landscape of investing is undergoing a tectonic shift, with sustainable investing becoming a pivotal aspect of the financial market. From a surge of over 50% in four years culminating at US$39 trillion in 2020, sustainable assets are projected to eclipse US$80 trillion[2] by 2024 , accounting for more than half of the forecasted global assets under management. This surge is propelled by the escalating focus of investors and consumers on issues of climate change, social justice, and overall sustainability, leading to an amplified call for corporations to provide more comprehensive Environmental, Social, and Governance (ESG) disclosures.

ESG disclosure, also referred to as ESG reporting, sustainability reporting, corporate social responsibility (CSR) reporting, and purpose-led reporting, is the practice of communicating an organization's performance in terms of environmental, social, and governance aspects. Because ESG reports often contain useful information about a company's operations and performance in regards to ESG issues, they enable investors to better assess companies and make well-informed decisions about potential investable assets.. Nevertheless, despite the burgeoning demand for heightened ESG transparency, numerous corporations grapple with enhancing their sustainability reporting due to various challenges, including the lack of a universally accepted ESG reporting framework, which often makes ESG disclosure a costly endeavour.

Several theories have been advanced to explain why corporations persist in disclosing their ESG information despite these challenges. The most prominent amongst them is the legitimacy theory (Deegan, 2006; Deegan and Samkin, 2009), which posits that because of the implicit social contract

[2] https://www.bloomberg.com/professional/blog/esg-assets-may-hit-53-trillion-by-2025-a-third-of-global-aum/

that exists between companies and society, firms risk losing their licenses to operate in society if they do not adhere to societal norms. As a result, companies may voluntarily disclose their ESG information if their executives believe that these activities are expected by society in order to justify their behaviour to their stakeholders. The stakeholder theory (Freeman, 1984; Guthrie et al., 2006), on the other hand, emphasizes the need for managers to act in the interests of all stakeholders, not just shareholders, to create value and survive long-term. With the emergence of ESG considerations over the last few years, managerial attention has increasingly shifted from internal stakeholders to external ones. As corporates acknowledge a community's "right-to-know", the provision of such information has also improved. The institutional theory (DiMaggio and Powell, 1983) contends instead that corporate behaviour is shaped by the institutional environment in which they operate. Through a mix of coercive, mimetic, and normative isomorphic pressures, companies therefore adopt sustainability reporting practices that conform to generally accepted practices.

In this paper, I propose a complementary catering hypothesis of ESG disclosure where managers respond to investor demand for ESG reporting by disclosing more when investors place a stock price premium on companies with high ESG disclosure levels (termed as high disclosers) and less when investors prefer low disclosers. The study's focus is the US market, where ESG disclosure remains largely voluntary, unlike in Europe with its mandatory Non-Financial Reporting Directive. This context allows for effective isolation of the effects of catering incentives on corporate ESG reporting practices.

The hypothesis is tested using the methodologies of Baker et al. (2009) and Anouar (2012). This approach incorporates a time series measure of catering incentives into a panel regression using firm-level data, which enables comprehensive control for compositional effects and temporal variation in firm and board characteristics that could influence corporate ESG disclosure policies. An analysis of

a sample of 2207 US firms from the period 2005 to 2022 reveals a positive correlation between the level of ESG disclosure and the observed ESG disclosure premium, aligning with the proposed hypothesis. These findings are robust, holding true when accounting for investor sentiment considerations and when employing alternative statistical techniques.

This study is motivated by several key objectives. Primarily, while the legitimacy, institutional, and stakeholder theories prominently feature in academic literature as explanations for ESG disclosure by firms, they predominantly focus on socio-political and ethical motivations behind corporate ESG disclosures, underscoring the role of external pressures and expectations. However, there is a relative dearth of research exploring an alternative perspective that emphasizes the strategic, market-driven motivations behind ESG disclosures. This study aims to address this research gap by illuminating the complementary role of financial market incentives in shaping corporate ESG disclosure practices, thereby offering a more nuanced understanding of the motivations behind ESG disclosures.

In addition, this study also seeks to enrich the existing body of sustainability accounting literature by concentrating on managerial decision-making processes, specifically in relation to the strategic use of ESG disclosures. By investigating how external factors such as investor demand shape corporate strategy and influence ESG reporting practices, this study contributes to the identification of the determinants of a company's decision to disclose ESG data, thereby enhancing a rapidly evolving area in sustainability accounting.

Moreover, by shedding light on the drivers behind ESG disclosures, this study serves as a beacon for policymakers, investors, and various stakeholders, facilitating a nuanced comprehension of the mechanisms that spur ESG disclosures. Such insights are invaluable for the crafting of informed policies and regulations designed to bolster ESG disclosure practices. Furthermore, this research

contributes to the broader academic and policy dialogues concerning the intersection of business operations and societal sustainability, as well as the synergy between corporate policy and environmental, social, and governance imperatives.

In essence, this study not only offers a fresh lens through which to view firm motivations for ESG disclosures but also enriches the tapestry of literature on the subject. It aligns itself with seminal works that have explored the influence of catering considerations on managerial decisions, such as dividend policy (Baker and Wurgler, 2004), share splits (Bakeret al., 2009), earnings management (Rajgopal at al., 2007), and corporate spin-offs (Sudarsanam and Qian, 2007), thereby broadening the scope of academic inquiry into the strategic underpinnings of corporate behaviour.

The rest of this paper is structured as follows: Section 2 discusses the catering hypothesis of ESG disclosure and develops the hypothesis. Section 3 describes the data sample and the methodology pursued. The empirical findings are reported in Section 4, with the robustness checks performed in Section 5. Section 6 concludes the paper.

2. Catering Incentives in ESG Disclosure and Hypothesis Development

In this section, I develop the catering hypothesis of ESG disclosure. The hypothesis postulates that the decision to provide ESG disclosure is driven by the prevailing investor demand for companies with high levels of ESG disclosure. Managers cater to investors by increasing disclosures when investors place a stock price premium on companies with high ESG disclosure levels (termed as high disclosers) and decreasing disclosures when investor preference leans towards low disclosers.

Analogous to Baker and Wurgler (2004), the hypothesis is built on the following three premises. First, there exists a group of investors who, due to various institutional and behavioural factors, have an uninformed, time varying demand for stocks with high levels of ESG disclosure. Because of this investor demand, the prices of companies with differing ESG disclosures can occasionally diverge. Second, limits to arbitrage prevents this price disparity from being arbitraged away by the market. Lastly, managerial myopia leads managers to prioritise short-run benefits of catering to the current mispricing over the associated long-run costs when setting their ESG disclosure policies. Each of these components is explored in greater detail below.

2.1 Uninformed, time-varying investor demand for ESG disclosure and arbitrageurs

I start by assuming that there are two types of investors: those who reward companies with high ESG disclosures and arbitrageurs. There are several motivations for the existence of investors who prefer high disclosers.

According to Döttling and Kim (2021), there are two main categories of investors who favour ESG investments. The first category comprises investors drawn to the superior risk-return trade-offs of ESG investments or their utility as a hedging instrument. Empirical evidence supports this assertion, demonstrating that companies with enhanced ESG disclosures often display stronger investment efficiency (Allman and Won, 2021), lower default risk (Atif and Ali, 2021), reduced costs of debt financing (Raimo et al., 2021), and decreased informational asymmetries and agency costs. These factors collectively contribute to an increase in firm value. Therefore, a firm's superior level of ESG information disclosure is interpreted as a signal of enhanced firm financial performance (Li et al., 2018; Yoo and Managi, 2022). Additionally, some investors perceive ESG stocks as effective hedges against long-term risks associated with climate change (Engle et al. 2020; Giglio et al., 2020) or

downside risk (Lins et al., 2017; Albuquerque et al. 2019). Anecdotal evidence, such as PwC's 2021 Global Investor Survey[3] of 325 global investors, corroborates this perspective. In this survey, nearly 80% of respondents emphasized a company's management of its ESG risks and opportunities as a crucial factor in their investment decision-making process. Furthermore, three-quarters of the respondents reported actively using corporate ESG information to screen for potential investment opportunities.

The second category of investors, identified by Döttling and Kim (2021), consists of those who derive non-pecuniary utility from aligning their investments with their social preferences. These investors may either possess strong intrinsic prosocial preferences (Gollier and Pouget, 2014) or engage in social signalling (Benabou and Tirole, 2010). A growing body of research supports the existence of such preferences. For instance, Riedl and Smeets (2017) integrated mutual fund holdings data with experimental and survey evidence, and found that investors who exhibit stronger social behaviour in trust game experiments and who donate more to charities tend to also hold more socially responsible equity funds. Interestingly, their survey data indicated that these investors invest in ESG funds even with the expectation of underperformance, suggesting a willingness to sacrifice returns to align investments with social preferences. Using a revealed preference approach, Baker et al. (2022) quantified the premium that shareholders place on ESG at 20 basis points per annum on average for an investment in a fund with an ESG mandate versus an identical mutual fund without an ESG mandate.

It is worth pointing out that while these investors with high ESG preferences do exist, the intensity of their ESG preference can fluctuate over time. This time variation is influenced by a myriad of factors, including their investment horizon (Starks et al., 2017; Breuer et al., 2024), prevailing economic conditions (Döttling and Kim, 2022; D'Hondt et al., 2022; Cho, 2023), and local political

[3] https://www.pwc.com/gx/en/corporate-reporting/assets/pwc-global-investor-survey-2021.pdf

views (Blomqvist and Stradi, 2022). Indeed, the existence of time variation in the preference for ESG investments is substantiated by numerous empirical studies (Cho, 2023; Bansal et al., 2022; Pedersen et al., 2021), indicating the presence of multiple sources contributing to the fluctuating investor demand for high ESG disclosures.

2.2 Limits of arbitrage and the ESG disclosure premium

It is further posited that due to this time-varying investor demand, the prices of companies with differing ESG disclosures can occasionally be driven apart. However, this price disparity is not arbitraged away by the market due to various limits to arbitrage (Shleifer, 2000) that prevent the arbitrageurs from investing in these under-priced securities. These limitations can include inherent risk aversion among arbitrageurs, policy restrictions, or difficulties in finding substitute stocks for the mispriced securities. Empirical evidence of these limits to arbitrage is provided by Brunnermeier and Nagel (2004), who document the inability of hedge funds to correct stock prices during the technology bubble. Instead, they observed that these hedge funds were themselves heavily invested in technology stocks despite being aware of the bubble.

The combination of the time-varying investor demand for ESG disclosure and the limits to arbitrage thus results in a price disparity between companies with high versus low ESG disclosures, which this paper terms the ESG disclosure premium. This price disparity echoes the findings of Lopez de Silanes et al. (2022), who document how the collective actions of large numbers of institutional investors prioritising ESG data has led to an overvaluation of these securities relative to their financial fundamentals.

2.3 Managers' decision to cater to investor demand for ESG disclosure

I next assume that a firm manager's utility is driven by both the short-run stock price and the long-term fundamental value of the company. In perfect capital markets, where stock prices reflect fundamental value, the two objectives of maximising short-run share price and long-run firm value are essentially the same. However, in a world where investor rationality is relaxed, these two objectives become distinct.

This point is particularly pertinent as there are often long-term costs that companies need to incur in order to deliver greater sustainability reporting. One of the biggest challenges that corporates face when trying to enhance sustainability reporting is the absence of a consistent global standard defining ESG disclosures With a multitude of different ESG reporting standards currently in existence, businesses frequently struggle to identify both the type and style of reports expected of them and are often left to make their own implementation and reporting decisions. Gathering the required data is also onerous and costly since such data is typically not adequately managed or recorded, necessitating extensive coordination across different business functions to collect. This lack of a consensus ESG reporting system and interoperability means that companies incur hefty expenses when responding to the numerous, conflicting, and sometimes redundant requests for different ESG information. For companies without coherent ESG strategies, higher disclosure can also be dangerous as it exposes the organizations to public scrutiny and runs the risk of their progress and achievements being tracked and questioned.

Given these challenges and set against short-term market inefficiencies, the existence of the ESG disclosure premium therefore puts pressure on the manager to choose between maximising the short-run stock price, which is impacted by investor demand for ESG disclosure, and the long-run fundamental value, which is determined by the manager's investment policies. It is postulated that in

these situations, firm managers, driven by managerial myopia (Rappaport, 2005; Stein, 1989; Narayanan, 1985), will choose to maximise short-term share price. Prior research has already documented strong evidence of managerial myopia. Bushee (1998) and Porter (1992), for example, find that managers will often choose to cut their R&D expenditures in order to meet short-term earnings goals, even if these are done at the expense of the company's future value. Meanwhile Roychowdhury (2006) reports evidence of managers manipulating real activities such as overproducing or reducing discretionary expenditures to avoid reporting annual losses and to meet annual analysts forecasts. In this hypothesis, myopic managers choose to maximise short-term share price by disclosing more ESG data when investors prefer high levels of disclosure, and disclosing less ESG data when investors prefer low levels of disclosure.

2.4 Testable Hypothesis

Building on the theoretical foundation laid out in the previous sections, a testable hypothesis that encapsulates the core tenet of the catering incentives in ESG disclosure is hence formulated:

Hypothesis (H_0): The absolute ESG disclosure level of a company is positively related to the observed ESG disclosure premium. Specifically, it is posited that as the observed ESG disclosure premium increases, the level of ESG disclosure by the firm also rises correspondingly.

3. Research Design and Data

This study focuses on the US market, primarily due to its predominantly voluntary nature of ESG disclosure. In contrast to Europe, where mandatory ESG disclosure rules such as the Non-Financial

Reporting Directive of the European Union (EU) have been increasingly introduced across EU member states, ESG disclosure in the US largely remains a voluntary practice. This absence of regulatory influence allows us to more effectively isolate the effects of catering incentives on corporate ESG reporting practices. The stock sample comprises of all firms listed on the NYSE, NASDAQ and AMEX between 2005 to 2022 that have non-missing data for the variables required in the relevant regressions. The choice of this period corresponds to the reported frequency and longest availability of the Bloomberg ESG Disclosure scores, which are downloaded from Bloomberg. However, due to the fact that not all the companies have disclosure scores in all the years, the final data sample is made up of an unbalanced dataset of 2207 companies and 16890 firm-year observations. Company data is sourced from Factset and Refinitiv. The data used for the analysis is annual data at calendar year-ends.

3.1 Empirical model

To test the hypothesis, the methodology of Baker et.al. (2009) and Anouar (2012) is followed, employing a firm-level data analysis and incorporating the time series measure of catering incentives into panel regression. This approach enables a more comprehensive control for compositional effects that could influence corporate ESG disclosure policies and facilitates correction for effects related to variation over time in the cross-sectional dispersion in relevant firm and board characteristics. The following equation is specified:

$$Disclosure\_Score_{i,t} = \alpha + \beta ESG\_Disclose\_Prem_{t-1} + \gamma' X_{i,t-1} + \lambda' Y_{i,t-1} + \delta' Z_{i,t-1} + \varphi' \mu_j + \varepsilon_{ijt} \quad (1)$$

where the indices i, j and t correspond to firm, industry and fiscal year respectively. ε_{ijt} is the heteroscedastic firm-specific error term that is assumed to be correlated within the firm. α, β, γ', λ', δ' and φ' are the regression coefficients.

3.2 Dependent variable: ESG Disclosure Score

Consistent with Giannarakis (2014) and Qiu et al. (2016), the Bloomberg ESG Disclosure Score is used as a measure of the extent of a corporate's ESG disclosure, $Disclosure\_Score_{i,t}$. These scores are computed by Bloomberg, using a range of topics and data fields selected on the basis of industry agnostic frameworks such as the Global Reporting Initiative (GRI) and the Investor Stewardship Group (ISG). A uniform scoring methodology is applied across all sectors and regions, with equal weigh given to the Environment (E), Social (S) and Governance (G) pillars, as well as the topics within each pillar. The score can range from 0.1 for companies that disclose a minimal amount of ESG data, to 100 for firms that disclose every data point collected by Bloomberg from the relevant company-sourced filings, including CSR reports, sustainability reports and annual reports. Companies that are not covered by the Bloomberg ESG Group receive no score and are denoted as N/A. It is important to note that these scores solely measure the ESG disclosure levels of companies and do not evaluate their performance on any specific data point.

3.3 Explanatory variable: ESG Disclosure Premium

To construct the ESG disclosure premium variable, a methodology analogous to that of Baker, Greenwood and Wurgler (2009) is employed. The process begins by ranking all firms by their ESG disclosure scores in a given year *t*. A firm is defined as a high ESG discloser if its disclosure score is

in the top 30th percentile of the stock universe, and as a low discloser if it is in the bottom 70th percentile. The ESG disclosure premium variable, denoted as *ESG_Disclose_Prem*$_t$, is then calculated as the logarithmic difference in the value-weighted average market-to-book ratio of high ESG disclosers versus low disclosers:

$$ESG\_Disclose\_Prem_t = log\left(M/B\right)_t^{High} - log\left(M/B\right)_t^{Low} \quad (2)$$

where the firm market-to-book ratio, M/B, represents the ratio of the market capitalisation of the company to its stockholders' equity value.

Prior research has however indicated that ESG disclosure can impact stock performance (Serafeim and Yoon, 2022; Wong and Zhang, 2022; Shanaev and Ghimire, 2022). Given that the ESG disclosure premium includes the firm market capitalization, which is a function of its stock price, $ESG\_Disclose\_Prem_t$ becomes an endogenous regressor. In addition, McBrayer (2018) and Pitrakkos and Maroun (2019) have found corporate ESG disclosure policies to exhibit persistence, which exacerbates the endogeneity problem and leads to an identification problem, first highlighted by Manski (1993) in his linear-in-expectations model with social interactions. To address this, I follow Leary and Roberts (2014), Adhikari and Agrawal (2018) and Grennan (2019) by employing instrument variables and performing Two Stage Least Squares (2SLS) analysis.

3.4 Control variables

The vectors $X_{i,t-1}$, $Y_{i,t-1}$ and $Z_{i,t-1}$ are the control variables representing firm-specific financial, board and other characteristics respectively. The control variables chosen specifically represent

factors commonly observed in academic literature to be important determinants of corporate ESG reporting. Furthermore, empirical studies have documented the influence of some of these control variables on the market-to-book ratio of firms, a metric integral to the computation of our catering incentive variable, $ESG\_Disclose\_Prem_t$. The incorporation of these control variables therefore ensures the analytical integrity of our investigation and effectively addresses potential confounding effects, thereby ensuring that the observed relationship between the explanatory variable and the dependent variable is not spuriously influenced by omitted variables.

3.4.1 Firm-specific financial characteristics

Following Rahman and Alsayegh (2021), this study adopts four firm-specific financial variables as control variables, namely, profitability, financial leverage, size, and investment opportunities.

The relationship between profitability and ESG disclosures has emerged as a focal point of scholarly inquiry, albeit with mixed findings regarding the nature of this association. Ho and Taylor (2007) postulate that firms with lower profitability may engage in more extensive ESG disclosures as a strategy to highlight their contributions to societal welfare, suggesting an inverse relationship between profitability and the extent of disclosure. This perspective posits that less profitable entities leverage transparency in non-financial domains as a compensatory mechanism to enhance their corporate image.

In contrast, an alternative body of research, exemplified by studies conducted by Haniffa and Cooke (2005) and Tagesson et al. (2009), advocates for a positive correlation between profitability and ESG disclosures. This viewpoint contends that managers of more profitable firms are predisposed towards

greater disclosure to legitimize their corporate operations, thereby justifying their managerial positions and associated remunerations. Such disclosures are posited to serve as a mechanism for reinforcing the legitimacy of the firm's economic success and its broader social license to operate.

Furthermore, the influence of profitability extends beyond ESG disclosures to affect corporate market-to-book valuations. Sharma et al. (2013) employed the steady-state constant growth dividend discount model to elucidate the theoretical linkage between a firm's profitability and its market-to-book ratio, anchored in the market's perception of the firm's efficiency in asset utilization and potential for growth. Their empirical analysis corroborated a positive association between these variables. Sueppel (2021) further substantiated this relationship by documenting that profitability accounts for approximately 39% of the cross-sectional variance in firms' market-to-book ratios. Given the nuanced implications of profitability for both ESG disclosures and market valuation, this study incorporates profitability, measured as the return on equity $Profitability_{i,t}$, as a control variable.

Financial leverage is often highlighted as an important driver of sustainability disclosure. Studies (Weber, 2012; Herbohn et al., 2019) suggest that because creditors tend to demand higher ESG disclosures from borrowers, highly leveraged firms are under greater pressure to disclose more due to the increased debtholder scrutiny. Contrastingly, the relationship between a firm's market-to-book ratio and leverage has been debated, with traditional theories suggesting a negative correlation due to agency issues (Myers, 1977), active market timing (Baker & Wurgler, 2002), and a lack of target leverage ratios (Welch, 2004). However, Chen and Zhao (2006) challenge this view, finding that firms with higher market-to-book ratios, indicative of greater profitability and lower borrowing costs, benefit from increased debt financing, especially when they transition from low to medium market-to-book ratios. Given these insights, this study incorporates leverage as a control variable and defines it as the total debt to total assets $Leverage_{i,t}$.

Size has similarly been found in various studies (Giannarakis, 2014; Garcia and Whittaker, 2019) to be an important determinant of ESG disclosure. Larger corporations, due to their higher visibility and substantial resources, frequently encounter increased investor attention and stakeholder pressure to disclose their sustainability practices. Additionally, their capacity to leverage economies of scale often results in reduced disclosure costs, positioning them more advantageously than their smaller counterparts to provide more extensive ESG information. Consequently, size is included as a control variable in this study and measured as the logarithm of the firm's market capitalisation, denoted as $Size_{i,t}$.

The pursuit of enhanced sustainability transparency frequently necessitates substantial corporate expenditures. This is primarily due to the absence of a universally accepted global reporting framework and the need for corporate interoperability, both of which are integral for efficient data collection and gathering. Consequently, ESG disclosure represents a competing allocation of corporate resources that could otherwise be directed towards growth projects. This dynamic suggests that firms may opt to allocate their cash spending to sustainability reporting due to the presence of limited investment opportunities. Moreover, it can be posited that the disclosure of non-financial information assists in mitigating the adverse selection issues typically emerging from information asymmetries between the firm and its investors. As such, firms with fewer current investment opportunities due to information asymmetry may be more inclined to enhance their ESG disclosure. This enhancement aims to narrow the information gap and stimulate investors to provide more capital, enabling the firm to access new investment opportunities more effectively (Myers and Majluf, 1984).

This notion is supported by the findings of Allman and Won (2021), who examined the effects of ESG disclosure on corporate investment efficiency using the implementation of Directive

2014/95/EU as a quasi-natural shock to disclosure quality. Their study documented a significant decline in underinvestment for U.S. firms with substantial activities in the EU, which exposes them to the Directive, compared to other unaffected U.S. firms. Firms with lower ex-ante ESG disclosure levels and financial constraints registered the most substantial investment efficiency gains following the Directive's implementation. They achieved this by gaining better access to debt markets when they improved their sustainability transparency, akin to the effects of disclosing more financial information. Therefore, $Invest\_Opps_{i,t}$ is included as a control variable. Following Kallapur and Trombley (1999), the realized growth in the firm's assets is used as a proxy for the amount of investment opportunities faced by a company. It is worth noting that in certain studies (Myers, 1977; Adam and Goyal, 2008), the investment opportunity set of a firm is also proxied by the firm's market-to-book ratio. Interestingly, this ratio is also utilized in our computation of the ESG disclosure premium. The inclusion of this control variable thus ensures that our catering variable is not inadvertently capturing effects related to firms' relative investment opportunities.

3.4.2 Board characteristics

In addition to firm-specific financial metrics, the characteristics of a company's board have been found to significantly influence its ESG reporting policies. Boards of directors often play a pivotal role in corporate governance, aligning the interests of various stakeholders through their engagement policies and corporate social responsibility practices (Ingley and Van Der Walt, 2004; Brennan and Solomon, 2008). Vitolla et al. (2019) further argue that boards can significantly enhance information disclosure, particularly when there is a complementary relationship with transparency. Moreover, boards serve as a control mechanism to reduce agency costs, particularly in situations characterized by agency problems. In this context, voluntary disclosure serves as a control mechanism for two types

of agency relationships: those between shareholders and other stakeholders, and those between shareholders and the firm's management (Frias-Aceituno et al., 2013).

Several studies have explored the influence of board strength on the existence and quality of disclosed ESG information, highlighting its role in reducing information asymmetries among managers, owners, and stakeholders (Frias-Aceituno et al., 2013; Donnelly and Mulcahy, 2008). Researchers, including Jensen and Meckling (1976), Donelly and Mulcahy (2008), and Frías-Aceituno et al. (2013), have found a positive relationship between board strength (as measured by size, independence, activity, and diversity) and the presence and quality of voluntary disclosure. Specifically, board size, the proportion of non-managerial directors (independence), and board diversity have all been positively associated with voluntary ESG disclosure.

Arayssi et al. (2020), in their analysis of companies in Gulf Cooperation Council countries from 2008 to 2017, found that greater board independence and female board participation enhances a firm's positive image by improving social responsibility. They argue that independent boards and women's participation contribute to a balance between financial targets and social responsibilities. However, boards chaired by chief executive officers show less support for executing a social agenda and reporting ESG activities.

Arif et al. (2021) found that audit committee activism and independence have a significant positive effect on the level of compliance with the GRI guidelines, indicating the favourable effect of audit committee attributes on ESG reporting quality. They also found that audit committee attributes positively affect the quantity of ESG disclosures, with a more pronounced impact on environmental disclosures. They recommend firms to appoint a sustainability and/or governance committee to

engage more effectively in social and environmental activities and to communicate their societal engagements more effectively.

In addition to influencing ESG disclosures, board characteristics have also been identified in some academic studies as impacting the market-to-book ratio of firms. For instance, van Ees et al. (2003) examined 94 Dutch listed non-financial firms and found evidence that board independence is significantly inversely related to the firm's market-to-book ratio. Similarly, Bertoni et al. (2014) highlighted the strong effects of board independence on the market-to-book valuation of initial public offerings in Continental Europe. However, they noted that its significance varies according to the knowledge intensity of the industry, the age of the listing company, and the degree of separation between control and ownership.

To capture the influence of board characteristics on ESG reporting practices, eight control variables are included in the analysis. They are the proportion of women directors on the board $Women\_Pct\_Board_{i,t}$, the proportion of independent directors on the board $Indep\_Pct\_Board_{i,t}$ as well as the total number of board members $Board\_Size_{i,t}$. In addition, this paper also includes dummy control variables which take the value of 1 when the CEO also serves as the Chairman of the board $Duality_{i,t}$, and when the company has a compensation board committee $Comp\_Comm_{i,t}$, an audit board committee $Audit\_Comm_{i,t}$, a nomination board committee $Nom\_Comm_{i,t}$ and a CSR board committee $CSR\_Comm_{i,t}$ respectively, and the value of 0 otherwise.

3.4.3 Other control variables

Zhang and Wu (2023) posit that analyst coverage can significantly enhance corporate ESG performance through three mechanisms: reducing information asymmetry, enhancing monitoring, and spotlighting ESG considerations. Analysts, through comprehensive research, bridge the information gap between management and investors, act as external custodians to ensure ESG standards compliance, and highlight ESG considerations in their reports (Newton, 2019; Ivkovic and Jegadeesh, 2004). This perspective is supported by Gao et al. (2023), who found that analyst coverage positively impacts a firm's ESG scores by raising ESG awareness, reducing ESG factors' undervaluation, and supporting corporate ESG activities. Their study, which used instrumental variable estimation and a difference-in-differences approach, underscores analysts' pivotal role in promoting corporate sustainability. Similarly, Alazzani et al. (2021) discovered that companies with higher CSR disclosures are more likely to attract analyst coverage. Consequently, analyst coverage $Analyst\_Cover_{i,t}$ is included as a control variable in the study.

The industry affiliation of firms also plays an important role in determining the extent of corporate sustainability disclosures. Studies (Wallace et al., 1994) has found that industries that are consumer-oriented and environmentally sensitive tend to disclose more, as they are typically more susceptible to stakeholder scrutiny and potential impacts on sales (Cowen et al., 1987; Gamerschlag et al., 2010; Reverte, 2009). To capture these industry-specific influences, industries are classified according to the Global Industry Classification Standard (GICS) that was developed in 1999 by S&P Dow Jones Indices and MSCI, and include them in the regression as industry fixed effects μ_j.

3.5 Construction of the Instrument Variable

As mentioned earlier, the main difficulty in using Equation (1) to disentangle the various effects driving firm ESG disclosure policy is in the presence of $ESG\_Disclose\_Prem_t$ as a regressor

due to its endogeneity. To resolve the ensuing identification problem caused by the simultaneity in firm ESG disclosure policy and the ESG disclosure premium, this paper adopts the novel idea of Leary and Roberts (2014) of first extracting the return shock in stocks. This is then used to calculate the exogenous firm characteristic which is then combined to obtain the ESG disclosure idiosyncratic risk premium *ESG_Disclose_Idio_Prem*$_t$ which is finally applied as an instrument variable to identify Equation (1).

To do this, the return shocks are first estimated using the Fama-French five factor model for stock returns:

$$R_{it} = \alpha_{ijt} + \beta_{it}^{Mkt} MKT_t + \beta_{it}^{HML} HML_t + \beta_{it}^{SMB} SMB_t + \beta_{it}^{RMW} RMW_t + \beta_{it}^{CMA} CMA_t \quad (3)$$

where R_{ijt} is the total return for firm *i* over month *t*, MKT_t is the excess return on the market, HML_t is the value factor, SMB_t is the size factor, WML_t is the momentum factor, RMW_t is the profitability factor and CMA_t is the investment factor.

The regression equation (3) is estimated for each firm on a rolling monthly basis using historical monthly returns where historical data of at least 24 months and up to 60 months is required. The expected monthly returns are then calculated using the estimated factor loadings and the realized factor returns of the month, with the residuals being the idiosyncratic equity risk:

Expected return:

$$\hat{R}_{it} = \hat{\alpha}_{it} + \hat{\beta}_{it}^{Mkt} MKT_t + \hat{\beta}_{it}^{HML} HML_t + \hat{\beta}_{it}^{SMB} SMB_t + \hat{\beta}_{it}^{RMW} RMW_t + \hat{\beta}_{it}^{CMA} CMA_t \quad (4)$$

Idiosyncratic return:

$$\hat{\eta}_{it} = R_{it} - \hat{R}_{it} \tag{5}$$

The idiosyncratic equity risk is finally computed as the logarithm of the standard deviation of the monthly idiosyncratic equity shock over the last one year (Adhikari and Agrawal,2018; Grennan, 2019).

The ESG disclosure idiosyncratic risk premium is then calculated as follows and used as the instrument variable for predicting the ESG disclosure premium.

$$ESG\_Disclose\_Idio\_Prem_t = log(\hat{\eta}_i)_t^{High} - log(\hat{\eta}_i)_t^{Low} \tag{6}$$

The use of idiosyncratic equity risk as an instrument variable in the study is substantiated by various research studies. For instance, Reber et al. (2022) conducted an empirical examination of the relationship between ESG disclosure and idiosyncratic risk in Initial Public Offerings (IPOs) listed on the NYSE, NASDAQ, and AMEX from 2002 to 2018. Their findings revealed a statistically significant inverse correlation between ESG disclosure and idiosyncratic risk. The authors propose that ESG disclosures, by enhancing corporate information transparency and signalling adherence to sustainability norms, can augment a company's reputational capital with investors post-IPO. They argue that this reduction in informational asymmetry and alignment with societal expectations lead to a decrease in the idiosyncratic risk associated with stock returns.

In a related study, He et al. (2022) scrutinized the CSR disclosure practices of Chinese A-share companies listed between 2006 and 2019. They ingeniously used the mandatory social sustainability disclosure requirement, issued by the China Securities Regulatory Commission (CSRC) in December 2008, as an exogenous shock to explore its impact on investors' heterogeneous beliefs. Their results corroborated the hypothesis that CSR reports serve as a supplementary source of information to financial reports, leading to a decrease in idiosyncratic risks and mitigating share price mispricing. Furthermore, Liu et al. (2023) conducted an empirical investigation into the causal relationship between ESG performance and stock idiosyncratic volatility, utilizing data from A-share listed companies from 2012 to 2022. The study revealed a significant decrease in stock idiosyncratic volatility with improved ESG performance, suggesting that ESG investment enhances market transparency and consequently mitigates firm-specific risk. The analysis further posited that the impact of ESG performance on stock idiosyncratic volatility is mediated by its role in curbing managerial tendencies towards earnings management and enhancing analyst scrutiny.

4. Empirical findings

The descriptive statistics of the study are presented in Table 1. The average firm discloses nearly 40% of the ESG data points tracked by Bloomberg, although there is considerable variation in the levels of disclosure across companies. The scores range from a low of 10.291 to a high of 86.279, indicating a wide disparity in ESG disclosure practices. The positive skewness of the distribution suggests that some firms have particularly high ESG disclosure scores, though the distribution is still approximately normal. Over time, investors generally assign a valuation premium to companies with better ESG disclosures, as evidenced by the positive average premium across firms. The negative average ESG idiosyncratic equity risk premium also highlights the valuation discount typically applied to companies with high ESG disclosure scores.

Regression 1 of Table 2 shows the results of the Two Stage Least Squares regression of firm ESG disclosure scores against the ESG disclosure premium and other control variables, with the ESG disclosure idiosyncratic risk premium being used as an instrument. The ESG disclosure premium emerges as a statistically significant positive driver of firm ESG disclosure scores, $\beta = 72.760$, $t(16865) = 13.900$, $p<.01$. This finding substantiates the hypothesis that firms strategically modify their ESG reporting levels in response to the valuation premium that investors assign to companies demonstrating high, as opposed to low, levels of ESG disclosures. This suggests the presence of potent catering incentives guiding corporate ESG disclosure practices. The adjusted Generalized Variance Inflation Factor (GVIF), computed using the formula $GVIF^{1/(2*Df)}$, where *Df* represents the degrees of freedom, is also presented. Upon examination, there is no indication of multicollinearity, as all the regression coefficients' adjusted GVIF values are beneath the conventional threshold of 5, which is generally recognized as a sign of multicollinearity. This absence of multicollinearity provides assurance that the previously identified presence of catering incentives in ESG disclosure is not confounded by the distorting effects of multicollinearity.

The regression analysis also reveals positive coefficients for the profitability and financial leverage variables, $\beta = 0.003$, $t(16865) = 1.809$, $p<.1$ and $\beta = 0.009$, $t(16865) = 2.261$, $p<.05$ respectively. This aligns with existing literature (Haniffa and Cooke, 2005; Tagesson et al., 2009), suggesting that managers at profitable companies tend to provide more detailed information and that creditors demand more non-financial data from their highly-leveraged borrowers. Furthermore, the size variable presents a positive coefficient, $\beta = 1.881$, $t(16865) = 27.807$, $p<.01$, validating the findings of Giannarakis (2014) and Garcia and Whittaker (2019), who argue that larger companies are more likely to disclose extensive ESG data. Conversely, investment opportunities are negatively associated

with firm ESG disclosure policies, β = -0.003, $t(16865) = -1.860$, $p<.1$, supporting the idea that firms with fewer competing resource demands tend to allocate more towards ESG reporting.

The analysis also indicates a statistically significant positive relationship between a company's ESG disclosure levels and several board characteristics, contrasting with a negative relationship between CEO duality and a firm's ESG disclosure policy, β = -0.183, $t(16865) = -1.310$, $p>.1$, which, while consistent with existing academic literature, is not statistically significant in this analysis. This suggests that the influence of CEO duality on ESG disclosure may be less pronounced in the sample. Interestingly, the analysis shows that the existence of an audit committee does not appear to significantly influence a firm's ESG disclosure policies, β = -0.492, $t(16865) = -0.403$, $p>.1$. Additionally, the presence of a compensation or nomination committee is associated with a decrease in a firm's ESG disclosure level. These findings suggest that the role of these committees in shaping ESG disclosure practices may be more nuanced and complex.

It is important to note that the validity of the Two Stage Least Squares (2SLS) analysis critically depends on the appropriateness of the chosen instrument. To ascertain the suitability of the instrument variable, two tests are used. The first test is for instrument relevance, which aims to determine whether the instrument is sufficiently strongly correlated with the endogenous variable, in this case, the ESG disclosure premium. An F-test is performed and the results shown in Table 2. For all the regressions, the null hypothesis of instrument irrelevance is rejected. Because the 2SLS technique should only be utilized if the ESG disclosure premium is indeed an endogenous explanatory variable, the instrument exogeneity is also tested using the popular Hausman-Wu test. The results, as shown in the table, reveal extremely large test statistics for all the regressions. Thus, the null hypothesis of instrument exogeneity is rejected at the 1% significance level. These tests collectively validate the appropriateness of the chosen instrument in the 2SLS analysis.

5. Robustness Checks

The robustness of several aspects of the link between firm ESG disclosure levels and the catering incentives is now being tested.

5.1 Investor sentiment

In their seminal work proposing the catering theory of dividends, Baker and Wurgler (2004) also considered investor sentiment as an alternative explanation for the observed firm dividend behaviour. In fact, when comparing their dividend premium to the closed-end fund discount, their chosen measure of investor sentiment, they found a positive association, which they interpreted as preliminary support for a sentiment-based explanation.

In order to investigate whether the catering hypothesis for corporate ESG disclosure is merely reflecting investor sentiment, robustness tests are conducted using three timely measures of investor sentiment: the CBOE Implied Volatility Index (VIX), the American Association of Individual Investors (AAII) Bull-Bear Index, and the Investors Intelligence (II) Bull-Bear Index.

The first measure of investor sentiment, the CBOE Implied Volatility Index, is a real-time index computed by the Chicago Board Options Exchange (CBOE) using the average weighted prices of SPX puts and calls across a wide range of strike prices. This index represents the market's expectations for volatility over the coming 30 days and is widely used by practitioners to gauge the

level of fear and stress in the stock market. Smales (2017) advocates for the VIX as the preferred indicator of investor sentiment across a variety of measures, including the composite index developed by Baker and Wurgler (2006), the University of Michigan Consumer Sentiment Index, and the weekly Commitment of Traders report issued by the Commodity Futures Trading Commission (CFTC).

In alignment with other finance studies (Fisher and Statman,2000; Brown and Cliff, 2004), the Bull-Bear indices developed by the American Association of Individual Investors (AAII) and Investors Intelligence (II) are used as the second and third measures of retail and institutional investor sentiment, respectively. The AAII index is based on a weekly survey conducted among a random sample of its members, asking them about their expectations of the stock market's direction in the next six months. The responses are categorised as bullish, bearish, or neutral. The II index aggregates approximately 150 market newsletters produced by current or retired market professionals and categorises them as bullish, bearish, or neutral based on their expectations of future market movements. The bull-bear indices for both are calculated as the proportion of bullish responses less the proportion of bearish responses.

These measures of investor sentiment are included in the regressions in Columns 2-4 of Table 2. The results indicate that even after accounting for the effects of investor sentiment, the ESG disclosure premium remains a significant determinant of corporate sustainability reporting policies. This suggests that firms are catering to the prevailing market preference for high or low disclosers, and not merely responding to investor sentiment.

5.2 Statistical robustness

This study employs the Two Stage Least Squares (2SLS) model to estimate the influence of the ESG disclosure premium on corporate ESG reporting, thereby addressing potential endogeneity in the explanatory variable. However, it is worth noting that studies such as those by Baker et al. (2009) and Anouar (2012) have employed simple panel regression using firm-level data and then incorporating the time series measure of the catering incentives. To test the statistical robustness of the hypothesis, a similar approach is adopted by employing the random-effects panel regression technique to perform panel regression analysis on the dependent firm ESG disclosure score against the catering incentive.

The random-effects model is chosen due to the invariant nature of the explanatory variable, the ESG disclosure premium, across all firms within a given year. This makes a two-way fixed-effects model by firm and by year inappropriate.

The random-effects regression results are presented in Column 5 of Table 2. The results clearly indicate a statistically significant positive relationship between a firm's ESG disclosure level and the prior year observed ESG disclosure premium. Specifically, based on the regression, ceteris paribus, companies are more likely to increase their absolute levels of ESG disclosure by an average of 3.89 points when the logarithmic value-weighted market-to-book ratio of high disclosers is one time higher than that of low disclosers.

6. Conclusions

The rise of sustainability investing has spawned an intensified interest in corporate sustainability reporting practices. While several theories, including legitimacy, stakeholder, and institutional

theories, explain corporate motivations for ESG reporting, this paper introduces a complementary explanation: a catering hypothesis of ESG disclosure. Managers, it posits, respond to the prevailing ESG disclosure premium by adjusting their ESG disclosures accordingly, increasing when the premium is high and decreasing when investors favor low disclosers.

An empirical examination of the ESG reporting practices of 2207 U.S. firms from 2005 to 2022 provides robust evidence supporting this hypothesis. The observed valuation premium that the market assigns to high disclosers versus low disclosers emerges as a positive driver of corporate ESG disclosure levels. Managers, observing a market preference for companies with more extensive ESG data disclosure, are likely to augment or curtail their levels of disclosure accordingly.

The findings of this research have several noteworthy implications. For the academic community, the study provides a fresh perspective on ESG disclosure practices, suggesting that they are not solely a manifestation of corporate social responsibility but also a strategic response to market incentives. This introduces new research avenues into the strategic facets of ESG disclosures, serving as a foundation for future work aimed at developing this hypothesis into a comprehensive theory. The study also offers empirical support for the catering theory in the context of ESG disclosures, paving the way for additional exploration in subsequent research. For policymakers, the understanding that managers cater their ESG disclosures to investor demand could shape regulatory approaches to ESG reporting. Policymakers might contemplate whether mandatory reporting standards are necessary to ensure that ESG disclosures accurately portray firms' environmental and social impacts, rather than merely catering to investor demand. The study's findings also have implications for investor protection. If managers are adjusting their ESG disclosures based on market incentives, investors may not be receiving a fully accurate depiction of firms' ESG risks. This suggests that measures ensuring investors have access to reliable and comprehensive ESG information might warrant consideration.

Additionally, if market incentives can drive ESG disclosures, it presents an opportunity for policymakers to shape these incentives to promote enhanced corporate sustainability practices. This could involve, for instance, policies that reward firms that not only disclose ESG information but also demonstrate a commitment to improving their ESG performance.

Our study, while offering valuable insights, has certain inherent limitations. Firstly, we acknowledge that the paper adopts an instrumental approach to sustainability, which inherently has a clear normative basis. This could be viewed as a limitation as the scope of sustainability extends far beyond stock returns. Secondly, the study relies on Bloomberg's ESG disclosure scores which is also widely adopted in many other academic studies (Pyles, 2020; McBrayer, 2018; Yu and Van Luu, 2021; Eng et al., 2022). While Bloomberg is a reputable source, its scores may not encompass all aspects of a company's ESG performance. Other ESG rating providers such as MSCI and Sustainalytics, employing different methodologies, may yield different scores for the same company. Thirdly, the study's focus on U.S. firms allows for a more controlled analysis. However, the findings may not be generalizable to firms in other countries, particularly those with differing regulatory environments or cultural attitudes towards ESG issues. Fourthly, the study does not account for materiality considerations in ESG disclosures. Some ESG issues may be more material or relevant to certain companies' performance than others. Without considering materiality, the study may over- or under-estimate the importance of certain ESG disclosures. Finally, the study spans the period from 2005 to 2022. While this provides a long-term perspective, ESG reporting practices and investor attitudes towards ESG issues may continue to evolve. These limitations offer opportunities for future research to build upon our study and deepen our understanding of ESG disclosures.

References

1. Adam, T. and Goyal, V., 2008. The Investment Opportunity Set and its Proxy Variables. Journal of Financial Research 31(1), pp.41-63.
2. Adhikari, B. and Agrawal, A., 2018. Peer Influence on Payout Policies. Journal of Corporate Finance 48, pp. 615-637.
3. Alazzani, A., Wan-Hussin, W., Jones, M. and Al-hadi, A., 2021. ESG Reporting and Analysts' Recommendations in GCC: The Moderation Role of Royal Family Directors. Journal of Risk and Financial Management 14(2):72.
4. Albuquerque, R., Koskinen, Y. and Zhang, C., 2019. Corporate Social Responsibility and Firm Risk: Theory and Empirical Evidence. Management Science 65(10), pp. 4451–4469.
5. Allman, E. and Won, J., 2021. The Effect of ESG Disclosure on Corporate Investment Efficiency. In Proceedings of Paris December 2021 Finance Meeting EUROFIDAI-ESSEC.
6. Anouar, K., 2012. The Impact of the Catering Theory and Financial Firms' Characteristics on Dividend Decisions: The Case of the French Market. HAL Working Papers halshs-00765931.
7. Arayssi, M., Jizi, M. and Tabaja, H., 2020. The Impact of Board Composition on the Level of ESG Disclosures in GCC Countries. Sustainability Accounting, Management and Policy Journal 11(1), pp. 137-161.
8. Arif, M., Sajjad, A., Farooq, S., Abrar, M. and Joyo, A., 2021. The Impact of Audit Committee Attributes on the Quality and Quantity of Environmental, Social and Governance (ESG) Disclosures. Corporate Governance 21(3), pp. 497-514. https://doi.org/10.1108/CG-06-2020-0243
9. Atif, M. and Ali, S., 2021. Environmental, Social and Governance Disclosure and Default Risk. Business Strategy and the Environment 30(8), pp.3937-3959.
10. Baker, M. and Wurgler, J., 2002. Market Timing and Capital Structure. Journal of Finance 57(1), pp. 1-32.

11. Baker, M. and Wurgler, J., 2004. A Catering Theory Of Dividends. The Journal of Finance 59(3), pp. 1125-1165.
12. Baker, M., And J. Wurgler, 2006, Investor Sentiment And The Cross-Section Of Stock Returns, Journal Of Finance, 61, 1645-1680
13. Baker, M., Egan, M. and Sarkar, S., 2022. How Do Investors Value ESG?. National Bureau of Economic Research, Working Paper 30708.
14. Baker, M., Greenwood, R. And Wurgler, J., 2009. Catering Through Nominal Share Prices. Journal Of Finance, 64(6), pp.2559-2590.
15. Bansal, R., Wu, D. and Yaron, A., 2022. Socially Responsible Investing in Good and Bad Times. Review of Financial Studies 35(4), pp. 2067-2099.
16. Bénabou, R. and Tirole, J., 2010. Individual and Corporate Social Responsibility. Economica 77(305), pp.1-19.
17. Bertoni, F. Meoli, M. and Vismara, S., 2014. Board Independence, Ownership Structure and the Valuation of IPOs in Continental Europe. Corporate governance 22 (2), pp.116-131.
18. Blomqvist, A. and Stradi, F., 2022. Responsible Investments: An Analysis of Preference - The Influence of Local Political Views on the Return on ESG Portfolios. European Journal of Finance, pp.1-30.
19. Brennan, N. and Solomon, J., 2008. Corporate Governance, Accountability and Mechanisms of Accountability: An Overview. Accounting, Auditing & Accountability Journal 21, pp. 885-906.
20. Breuer, W., Trauzettel, T., Müller, T. and Salzmann, A., 2024. An International Perspective on Corporate Social Responsibility, Investor Time Preferences, and Cost of Equity, International Business Review 33(1), 102194,
21. Brown, G. and Cliff, M., 2004. Investor Sentiment and the Near-Term Stock Market. Journal of Empirical Finance 11(1), pp.1-27.

22. Brunnermeier, K. and Nagel, S., 2004. Hedge Funds and the Technology Bubble. The Journal of Finance 59(5), pp.2013-2040.
23. Bushee, B., 1998. The Influence of Institutional Investors on Myopic R&D Investment Behavior. Accounting Review, pp.305-333.
24. Chen, L. and Zhao, X., 2006. On the Relation Between the Market-to-Book Ratio, Growth Opportunity, and Leverage Ratio. Finance Research Letters 3(4), pp. 253-266,
25. Cho, E., 2023. Time-varying Preferences for ESG Investments: Evidence from an Emerging Market. Journal of Derivatives and Quantitative Studies 31(2), pp. 121-138.
26. Cowen, S., Ferreri, L.B. and Parker, L.D., 1987. The Impact of Corporate Characteristics on Social Responsibility Disclosure: A Typology and Frequency-Based Analysis. Accounting, Organisations and Society 12(2), pp. 111-122.
27. D'Hondt, C., Merli, M. and Roger, T., 2022. What Drives Retail Portfolio Exposure to ESG Factors?. Finance Research Letters 46(B), 102470.
28. Deegan, C. and Samkin, G., 2009. New Zealand Financial Accounting, McGraw-Hill, Sydney, Australia.
29. Deegan, C., 2006. Legitimacy Theory, in Z. Hoque {ed.), Methodological Issues in Accounting Research: Theories and Methods, Spiramus, London, U.K., pp. 161-181.
30. Di Maggio, P., and Powell, W., 1983. The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields. American Sociological Review 48, pp. 147-160.
31. Donnelly, R. and Mulcahy, M., 2008. Board Structure, Ownership, and Voluntary Disclosure in Ireland. Corporate Governance: An International Review 16(5), pp.416-429.
32. Donnelly, R. and Mulcahy, M., 2008. Board Structure, Ownership, and Voluntary Disclosure in Ireland. Corporate Governance: An International Review 16, pp. 416–429.

33. Döttling, R. and Kim, S., 2021. ESG Investments and Investors' Preferences. In CESifo Forum (Vol. 22, No. 03, pp. 12-16). München: ifo Institut-Leibniz-Institut für Wirtschaftsforschung an der Universität München.
34. Döttling, R. and Kim, S., 2022. Sustainability Preferences Under Stress: Evidence from COVID-19. Journal of Financial and Quantitative Analysis, pp.1-39.
35. Eng, L., Fikru, M. and Vichitsarawong, T., 2022. Comparing the Informativeness of Sustainability Disclosures versus ESG Disclosure Ratings. Sustainability Accounting, Management and Policy Journal 13(2), pp.494-518.
36. Engle, R., Giglio,S., Kelly, B., Lee, H. and Stroebel, J., 2020. Hedging Climate Change News. Review of Financial Studies 33(3), pp. 1184–1216.
37. Fisher, K. and Statman, M., 2000. Investor Sentiment and Stock Returns. Financial Analysts Journal 56(2), pp.16-23.
38. Freeman, R.E., 1984. Strategic Management: A Stakeholder Approach. Boston: Pitman Publishing Inc.
39. Frias-Aceituno, J., Rodriguez-Ariza, L. and Garcia-Sanchez, I., 2013. The Role of the Board in the Dissemination of Integrated Corporate Social Reporting. Corporate Social Responsibility and Environmental Management 20, pp. 219–233.
40. Gamerschlag, R., Möller, K. and Verbeeten, F.,2010. Determinants of Voluntary CSR Disclosure: Empirical Evidence from Germany. Review of Managerial Science 5(2), pp. 233-262.
41. Gao, H., Wang, H., and Wen, H., 2023. Does Analyst Coverage Affect Corporate ESG Performance? Evidence from China. Evidence from China (April 21, 2023).
42. Garcia S. and Whittaker, T., 2019. ESG Reporting and Financial Performance: the Case of Infrastructure. EDHEC Infrastructure.

43. Giannarakis, G., 2014. Corporate Governance and Financial Characteristic Effects on the Extent of Corporate Social Responsibility Disclosure. Social Responsibility Journal 10(4), pp. 569 - 590.
44. Giglio, S., Kelly, B. and Stroebel, J., 2020. Climate Finance. National Bureau of Economic Research, Working Paper 28226.
45. Gollier, C. and Pouget, S., 2014. The "Washing Machine": Investment Strategies and Corporate Behavior with Socially Responsible Investors.
46. Grennan, J., 2019. Dividend Payments as a Response to Peer Influence. Journal of Financial Economics 131, pp. 549-570.
47. Guthrie, J., Petty, R. and Ricceri, Ff, 2006. The Voluntary Reporting of Intellectual Capital: Comparing Evidence from Hong Kong and Australia. Journal of Intellectual Capital 7(2), pp 254-271.
48. Haniffa, R. and Cooke, T., 2005. The Impact of Culture and Governance on Corporate Social Reporting. Journal of Accounting and Public Policy 24(5), pp. 391-430.
49. He, F., Qin, S., Liu, Y. and Wu, J., 2022. CSR and Idiosyncratic Risk: Evidence from ESG Information Disclosure. Finance Research Letters 49, 102936.
50. Herbohn, K., Gao, R. and Clarkson, P., 2019. Evidence on Whether Banks Consider Carbon Risk in Their Lending Decisions. Journal of Business Ethics 158, pp 155–75.
51. Ho, L. and Taylor, M., 2007. An Empirical Analysis of Triple Bottom-line Reporting and its Determinates: Evidence From the United States and Japan. Journal of International Financial Management and Accounting 18(2), pp. 123-150.
52. Ingley, C. and Van Der Walt, N., 2004. Corporate Governance, Institutional Investors and Conflicts of Interest. Corporate Governance: An International Review 12, pp. 534–551.
53. Ivković, Z. and Jegadeesh, N., 2004. The Timing and Value of Forecast and Recommendation Revisions. Journal of Financial Economics 73, pp. 433–63

54. Jensen, M. and Meckling, W., 1976. Theory of The Firm Manajerial Behaviour, Ageny Cost and Ownership structure. Jounrla of Financial Economics 3, pp. 305–360.
55. Kallapur, S, and Trombley, M., 1999. The Association Between Investment Opportunity Set Proxies and Realized Growth. Journal Of Business Finance and Accounting 26, 505-519
56. Leary, M. and Roberts, M., 2014, Do Peer Firms Affect Corporate Financial Policy?. Journal of Finance 69, pp. 139-178.
57. Li, Y., Gong, M., Zhang, X. and Koh, L., 2018. The Impact of Environmental, Social, and Governance Disclosure on Firm Value: The Role of CEO Power. The British Accounting Review 50(1), pp.60-75.
58. Lins, K., Servaes, H. and Tamayo, A., 2017.) Social Capital, Trust, and Firm Performance: The Value of Corporate Social Responsibility During the Financial Crisis. Journal of Finance 72(4), pp. 1785–1824.
59. Liu, D., Gu, K. and Hu, W., 2023. ESG Performance and Stock Idiosyncratic Volatility. Finance Research Letters 58(B), 104393.
60. Lopez-de-Silanes, F., McCahery, J. and Pudschedl, P., 2022. Institutional Investors and ESG Preferences. https://ssrn.com/abstract=4049313.
61. Manski, C., 1993. Identification of Endogenous Social Effects: The Reflection Problem. Review of Economic Studies 60, pp. 531-542.
62. McBrayer, G., 2018. Does Persistence Explain ESG Disclosure Decisions?. Corporate Social Responsibility and Environmental Management 25(6), pp. 1074-1086.
63. Myers, S. and Majluf, N., 1984. Corporate Financing and Investment Decisions When Firms Have Information That Investors Do Not Have. Journal of Financial Economics 13(2), 187–221.
64. Myers, S., 1977. Determinants of Corporate Borrowing. Journal of Financial Economics 5, pp. 146-175

65. Narayanan, M., 1985. Managerial Incentives for Short-Term Results. Journal of Finance 40, pp. 1469-1484.

66. Newton, N., 2019. When Analysts Speak, Do Auditors Listen?. Auditing 38 pp. 221-45

67. Pedersen, L., Fitzgibbons, S. and Pomorski, L., 2021. Responsible Investing: The ESG-efficient Frontier. Journal of Financial Economics 142(2), pp. 572-597.

68. Pitrakkos, P. and Maroun, W., 2019. Evaluating the Quality of Carbon Disclosures. Sustainability Accounting Management and Policy Journal 11(3), pp. 553-589.

69. Porter, M., 1992. Capital Choices: The Causes and Cures of Business Myopia. Unpublished paper presented at US Government's Council on Competitiveness, Washington DC.

70. Pyles, M., 2020. Examining Portfolios Created by Bloomberg ESG Scores: Is Disclosure an Alpha Factor?. The Journal of Impact and ESG Investing 1(2), pp.39-52.

71. Qiu, Y., Shaukat, A. and Tharyan, R., 2016. Environmental and Social Disclosures: Link with Corporate Financial Performance. The British Accounting Review 48(1), pp. 102-116.

72. Rahman, R. and Alsayegh, M., 2021. Determinants of Corporate Environment, Social and Governance (ESG) Reporting Among Asian Firms. Journal of Risk and Financial Management 14(4), pp. 1-13.

73. Raimo, N., Caragnano, A., Zito, M., Vitolla, F. and Mariani, M., 2021. Extending the Benefits of ESG Disclosure: The Effect on the Cost of Debt Financing. Corporate Social Responsibility and Environmental Management 28(4), pp.1412-1421.

74. Rajgopal, S., Shivakumar, L., and Simpson, A.V., 2007. A Catering Theory of Earnings Management. LSN: Law & Finance: Empirical (Topic).

75. Rappaport, A., 2005. The Economics of Short-Term Performance Obsession. Financial Analysts Journal 61, pp. 65-79.

76. Reber, B., Gold, A. and Gold, S., 2022. ESG Disclosure and Idiosyncratic Risk in Initial Public Offerings. Journal of Business Ethics 179(3), pp. 867-886.

77. Reverte, C., 2009. Determinants of Corporate Social Responsibility Disclosure Ratings by Spanish Listed Firms. Journal of Business Ethics 88(2), pp. 351-366.
78. Riedl, A. and Smeets, P., 2017. Why Do Investors Hold Socially Responsible Mutual Funds?. Journal of Finance 72(6), pp.2505-2550.
79. Roychowdhury, S., 2006. Earnings Management Through Real Activities Manipulation. Journal of Accounting and Economics 42(3), pp. 335-370.
80. Serafeim, G., and Yoon, A., 2022. Stock Price Reactions to ESG News: The Role of ESG Ratings and Disagreement. Review of Accounting Studies, pp. 1-31.
81. Shanaev, S. and Ghimire, B., 2022. When ESG Meets AAA: The Effect of ESG Rating Changes on Stock Returns. Finance Research Letters 46, 102302.
82. Sharma, A., Branch, B., Chgawla, C. and Qiu, L., 2013. Explaining Market-to-Book; The Relative Impact of Firm Performance, Growth, and Risk. Quest of Business, pp.277-293.
83. Shleifer, A., 2000. Inefficient Markets: An Introduction to Behavioral Finance. Oxford University Press.
84. Smales, L., 2017. The Importance of Fear: Investor Sentiment and Stock Market Returns. Applied Economics 49(34), pp.3395-3421.
85. Starks, L., Venkat, P. and Zhu, Q., 2017. Corporate ESG Profiles and Investor Horizons. Available at SSRN 3049943.
86. Stein, J. C., 1989. Efficient Capital Markets, Inefficient Firms: A Model of Myopic Corporate Behavior. Quarterly Journal of Economics 104, pp. 655-669.
87. Sudarsanam, P. and Qian, B., 2007. Catering Theory of Corporate Spinoffs: Empirical Evidence from Europe. American Finance Association Meetings (AFA).
88. Sueppel, R., 2021. A Market-to-Book Formula for Equity Strategies. Macrosynergy. Available at: https://research.macrosynergy.com/a-market-to-book-formula-for-equity-strategies/

89. Tagesson, T., Blank, V., Broberg, P. and Collin, S.O., 2009. What Explains the Extent and Content of Social and Environmental Disclosures on Corporate Websites: A Study of Social and Environmental Reporting in Swedish Listed Corporations. Corporate Social Responsibility and Environmental Management 16(6), pp. 352-364.
90. van Ees, H., Postma, T. and Sterken, E., 2003. Board Characteristics and Corporate Performance in the Netherlands. Eastern Economic Journal 29(1), pp. 41-58.
91. Vitolla, F., Raimo, N. and Rubino, M., 2019. Board Characteristics and Integrated Reporting Quality: An Agency Theory Perspective. Corporate Social Responsibility and Environmental Management 27, pp. 1152–1163.
92. Wallace, R., Naser, K. and Mora, A., 1994. The Relationship Between the Comprehensiveness of Corporate Annual Reports and Firm Characteristics in Spain. Accounting and Business Research 25(97), pp. 41-53.
93. Weber, O., 2012. Environmental Credit Risk Management in Banks and Financial Service Institutions. Business Strategy and the Environment 21, pp. 248–63.
94. Welch, I., 2004. Capital Structure and Stock Returns. Journal of Political Economy 112(1), pp.106-131.
95. Wong, J. and Zhang, Q., 2022. Stock Market Reactions to Adverse ESG Disclosure Via Media Channels. The British Accounting Review 54(1), 101045.
96. Yoo, S. and Managi, S., 2022. Disclosure or Action: Evaluating ESG Behavior Towards Financial Performance. Finance Research Letters 44, p.102-108.
97. Yu, E. and Van Luu, B., 2021. International Variations in ESG disclosure - Do Cross-listed Companies Care More?. International Review of Financial Analysis 75, p.101731.
98. Zhang, C. and Wu, X., 2003. Analyst Coverage and Corporate ESG Performance. Sustainability 15(17), 12763.

Table 1: Descriptive statistics

	$ESG\_Disclose\_Score_t$	$ESG\_Disclose\_Prem_{t-1}$	$ESG\_Disclose\_Idio\_Prem_{t-1}$	$Profitability_{t-1}$	$Size_{t-1}$	$Leverage_{t-1}$	$Invest\_Opps_{t-1}$	$Women\_Pct\_Board_{t-1}$	$Indep\_Pct\_Board_{t-1}$	$Board\_Size_{t-1}$	$Duality_{t-1}$	$Comp\_Comm_{t-1}$	$Audit\_Comm_{t-1}$	Nom_Comm_{t-1}	CSR_Comm_{t-1}	$Analyst\_Cover_{t-1}$
Mean	39.537	0.154	-0.322	7.829	8.476	25.833	14.867	18.081	80.006	9.831	0.607	0.982	0.996	0.898	0.354	11.801
Standard deviation	10.904	0.076	0.060	38.255	1.691	19.452	38.650	11.044	11.999	2.895	0.489	0.134	0.059	0.303	0.478	8.402
Skewness	1.156	0.166	1.360	-2.756	0.033	0.607	4.887	0.403	-1.500	9.530	-0.436	-7.201	-16.688	-2.630	0.609	0.942
Kurtosis	3.624	3.703	13.313	25.272	2.875	2.885	37.132	3.363	6.219	363.579	1.190	52.856	279.504	7.916	1.371	3.659
Maximum	86.279	0.356	0.123	231.439	12.658	108.588	521.517	100.000	100.000	138.000	1.000	1.000	1.000	1.000	1.000	53.000
Minimum	10.291	-0.011	-0.427	-363.664	2.383	0.000	-51.925	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000

Correlation matrix

	$ESG\_Disclose\_Score_t$	$ESG\_Disclose\_Prem_{t-1}$	$ESG\_Disclose\_Idio\_Prem_{t-1}$	$Profitability_{t-1}$	$Size_{t-1}$	$Leverage_{t-1}$	$Invest\_Opps_{t-1}$	$Women\_Pct\_Board_{t-1}$	$Indep\_Pct\_Board_{t-1}$	$Board\_Size_{t-1}$	$Duality_{t-1}$	$Comp\_Comm_{t-1}$	$Audit\_Comm_{t-1}$	Nom_Comm_{t-1}	CSR_Comm_{t-1}	$Analyst\_Cover_{t-1}$
$ESG\_Disclose\_Score_t$	1.000	0.014*	-0.062***	0.137***	0.440***	0.162***	-0.095***	0.345***	0.278***	0.232***	0.047***	-0.070***	0.002	-0.134***	0.592***	0.375***
$ESG\_Disclose\_Prem_{t-1}$	0.014*	1.000	-0.195***	-0.051***	-0.142***	0.009	0.041***	0.062***	-0.005	-0.066***	-0.047***	-0.018**	-0.004	-0.046***	-0.123***	-0.171***
$ESG\_Disclose\_Idio\_Prem_{t-1}$	-0.062***	-0.195***	1.000	0.049***	0.096***	-0.043***	-0.025***	-0.052***	-0.004	0.063***	0.049***	0.034***	-0.021***	0.070***	0.011	0.081***
$Profitability_{t-1}$	0.137***	-0.051***	0.049***	1.000	0.243***	-0.004	-0.083***	0.068***	0.055***	0.123***	0.096***	-0.024***	-0.012	-0.052***	0.135***	0.133***
$Size_{t-1}$	0.440***	-0.142***	0.096***	0.243***	1.000	0.140***	-0.144***	0.180***	0.178***	0.495***	0.148***	-0.055***	0.028***	-0.070***	0.428***	0.530***
$Leverage_{t-1}$	0.162***	0.009	-0.043***	-0.004	0.140***	1.000	-0.045***	0.062***	0.002	-0.032***	-0.004	-0.002	0.021***	-0.039***	0.109***	-0.048***
$Invest\_Opps_{t-1}$	-0.095***	0.041***	-0.025***	-0.083***	-0.144***	-0.045***	1.000	-0.051***	-0.060***	-0.072***	-0.025***	0.003	-0.019**	0.045***	-0.112***	-0.038***
$Women\_Pct\_Board_{t-1}$	0.345***	0.062***	-0.052***	0.068***	0.180***	0.062***	-0.051***	1.000	0.254***	0.123***	-0.009	-0.025***	0.006	-0.094***	0.259***	0.113***
$Indep\_Pct\_Board_{t-1}$	0.278***	-0.005	-0.004	0.055***	0.178***	0.002	-0.060***	0.254***	1.000	0.142***	-0.030***	-0.007	0.044***	0.013*	0.205***	0.134***
$Board\_Size_{t-1}$	0.232***	-0.066***	0.063***	0.123***	0.495***	-0.032***	-0.072***	0.123***	0.142***	1.000	0.084***	-0.016**	0.033***	-0.044***	0.238***	0.248***
$Duality_{t-1}$	0.047***	-0.047***	0.049***	0.096***	0.148***	-0.004	-0.025***	-0.009	-0.030***	0.084***	1.000	-0.019**	0.021***	-0.007	0.046***	0.137***
$Comp\_Comm_{t-1}$	-0.070***	-0.018**	0.034***	-0.024***	-0.055***	-0.002	0.003	-0.025***	-0.007	-0.016**	-0.019**	1.000	0.371***	0.151***	-0.030***	-0.016**
$Audit\_Comm_{t-1}$	0.002	-0.004	-0.021***	-0.012	0.028***	0.021***	-0.019**	0.006	0.044***	0.033***	0.021***	0.371***	1.000	0.154***	0.003	0.025***
Nom_Comm_{t-1}	-0.134***	-0.046***	0.070***	-0.052***	-0.070***	-0.039***	0.045***	-0.094***	0.013*	-0.044***	-0.007	0.151***	0.154***	1.000	-0.088***	-0.009
CSR_Comm_{t-1}	0.592***	-0.123***	0.011	0.135***	0.428***	0.109***	-0.112***	0.259***	0.205***	0.238***	0.046***	-0.030***	0.003	-0.088***	1.000	0.358***
$Analyst\_Cover_{t-1}$	0.375***	-0.171***	0.081***	0.133***	0.530***	-0.048***	-0.038***	0.113***	0.134***	0.248***	0.137***	-0.016**	0.025***	-0.009	0.358***	1.000

Note: Significance levels: *p < .1. **p < .05. ***p < .01.

Table 2: Catering Effects in ESG Disclosure Policy: Structural Estimates

The sample consists of all US listed firms between 2004 and 2022 with non-missing data for all analysis variables. The table presents two-stage least squares (2SLS) estimated coefficients, with the t-statistics and generalised variance inflation factors. The dependent variable is the firm ESG disclosure score. The endogenous variable is the ESG disclosure premium (ESG_Disclose_Prem). The instrument is the idiosyncratic equity risk premium (ESG_Disclose_Idio_Prem). We also examine whether our instrument variable is appropriate through two tests: (1) instrument relevance using the F-test, and (2) exogeneity using the Hausman-Wu test. Significance levels: *p < .1. **p < .05. ***p < .01.

Regression	(1)			(2)			(3)			(4)			(5)		
	2SLS			**Robustness checks**											
				Investor sentiment									Alternative statistical method		
				VIX			*II*			*AAII*					
	Reg coeff	t-stat	Adj GVIF	Reg coeff	t-stat	Adj GVIF	Reg coeff	t-stat	Adj GVIF	Reg coeff	t-stat	Adj GVIF	Reg coeff	t-stat	VIF
ESG_Disclose_Prem $_{t-1}$	72.760***	13.900	1.694	89.689***	15.013	1.864	68.825***	14.141	1.924	110.173***	11.908	3.437	3.893***	32.376	1.024
Firm-specific factors															
Proftiability $_{t-1}$	0.003*	1.809	1.072	0.002	0.838	1.072	0.002	1.188	1.071	0.000	0.069	1.075	0.001***	3.553	1.070
Size $_{t-1}$	1.881***	27.807	1.720	2.018***	27.640	1.743	1.912***	28.764	1.732	2.028***	24.632	1.800	0.820***	47.302	1.636
Leverage $_{t-1}$	0.009**	2.261	1.145	0.006	1.501	1.148	0.009**	2.351	1.145	0.006	1.376	1.155	0.013***	15.891	1.119
Invest_Opps $_{t-1}$	-0.003*	-1.860	1.036	-0.005**	-2.541	1.039	-0.002	-1.314	1.032	-0.005**	-2.479	1.050	-0.002***	-6.801	1.030
Board characteristics															
Women_Pct_Board $_{t-1}$	0.129***	17.088	1.252	0.121***	14.939	1.265	0.139***	19.638	1.206	0.114***	12.073	1.347	0.052***	41.756	1.055
Indep_Pct_Board $_{t-1}$	0.073***	12.202	1.086	0.070***	10.921	1.088	0.074***	12.565	1.086	0.070***	9.927	1.091	0.021***	17.919	1.054
Board_Size $_{t-1}$	0.087***	3.213	1.184	0.095***	3.281	1.184	0.092***	3.477	1.184	0.096***	3.046	1.184	0.069***	14.580	1.099
Duality $_{t-1}$	-0.183	-1.310	1.028	-0.104	-0.698	1.029	-0.163	-1.196	1.029	-0.069	-0.420	1.034	-0.471***	-16.793	1.023
Comp_Comm $_{t-1}$	-2.459***	-4.513	1.096	-1.930***	-3.315	1.100	-2.296***	-4.308	1.099	-1.732***	-2.687	1.115	-0.888***	-9.369	1.274
Audit_Comm $_{t-1}$	-0.492	-0.403	1.093	-1.690	-1.295	1.096	-1.407	-1.172	1.100	-2.044	-1.419	1.108	0.649***	3.794	1.281
Nom_Comm $_{t-1}$	-1.005***	-4.243	1.078	-0.360	-1.397	1.103	-0.848***	-3.625	1.092	-0.254	-0.847	1.173	-1.434***	-32.148	1.071
CSR_Comm $_{t-1}$	8.478***	47.154	1.293	8.969***	45.585	1.329	8.498***	48.321	1.296	8.991***	39.382	1.412	3.580***	128.039	1.051
Other control factors															
Analyst_Cover $_{t-1}$	0.153***	11.878	1.625	0.157***	11.429	1.630	0.128***	10.698	1.551	0.165***	10.677	1.678	0.074***	29.407	1.297
VIX $_{t-1}$	-	-	-	-0.247***	-18.410	1.168	-	-	-	-	-	-	-	-	-
II $_{t-1}$	-	-	-	-	-	-	0.413***	11.879	1.433	-	-	-	-	-	-
AAII $_{t-1}$	-	-	-	-	-	-	-	-	-	0.337***	10.536	2.762	-	-	-
Intercept	1.936	1.255	-	3.176*	1.949	-	-8.834***	-4.275	-	-5.370**	-2.423	-	36.506***	125.161	-
First-stage instrument															
ESG_Disclose_Idio_Prem $_{t-1}$	-0.214***	0.009	-	-0.202***	0.009	-	-0.225***	0.009	-	-0.144***	0.009	-	-	-	-
Industry Fixed Effects	Yes			Yes			Yes			Yes			Yes		
Adjusted R-squared	0.372			0.287			0.402			0.150			0.468		
Total no. of observations	16890			16890			16890			16890			16890		
Instr relevance: F-test	519.055***			454.064***			593.414***			241.249***			-		
Instr endogeneity: Hausman-Wu test	172.764***			246.324***			160.846***			194.875***			-		