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How does the type of consumer market (discretionary vs staples) impact the relationship between ESG performance and financial performance, and how does this difference vary across countries with different levels of media press freedom?

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LIST OF ABBREVIATIONS

CFP	Corporate financial performance
ESG	Environmental, social and governance
DISC	Consumer discretionary
FE	Fixed effects
GICS	Global industry classification standard
GDP	Gross domestic product
OLS	Ordinary least squares
PF	Press freedom
ROA	Return on assets
RSF	Reporters Sans Frontières (Reporters Without Borders)
SD	Standard deviation
SE	Standard error

1 INTRODUCTION

1.1 Motivation and research question

Environmental, social and governance (ESG) performance has become central to business strategy, risk management, disclosure regulations, and capital market valuation in addition to ethical investing. However, whether and under what conditions ESG performance is systematically linked to corporate financial performance (CFP) remains a topic of debate in the academic literature. Systematic reviews suggest that industry characteristics, governance structures, market maturity, and informational environments all affect the strength and direction of the ESG–CFP relationship (Friede et al., 2015).

This paper theorizes consumer market type as a moderator that conditions the slope of the ESG–CFP relationship, rather than treating it as a nuisance control. This is grounded in the structural differences between discretionary and staples markets in the extent to which consumers can translate ESG performance into purchasing decisions. Specifically, this translation depends on two channels: a *visibility channel*, whether consumers can observe and process credible ESG information, and a *consumer power channel*, whether consumers have the structural capacity to act on it through willingness-to-pay, brand loyalty, or product avoidance. Layered onto this, press freedom (PF) plays a central role by determining whether ESG information is independently verified and widely disseminated, and thus whether consumers can observe and act on it when making purchasing decisions (North, 1991; El Ghoul et al., 2019).

The thesis investigates the following research question:

How does the type of consumer market (discretionary vs staples) impact the relationship between ESG performance and financial performance, and how does this difference vary across countries with different levels of media press freedom?

1.2 Literature synthesis

The synthesis of the literature integrates three streams: (a) the ESG–CFP relationship and why findings conflict, (b) consumer market segmentation, discretionary versus staples, as a structural moderator of that relationship, and (c) press freedom as an institutional condition that determines whether consumers can observe and act on ESG information.

The current meta-evidence suggests that the overall business case for ESG is conditionally positive but not uniform. A synthesis of more than 2,200 empirical studies finds a predominantly non-negative ESG–CFP relationship, while documenting substantial heterogeneity across contexts and study designs (Friede et al., 2015). Orlitzky et al. (2003) similarly report a positive mean association, noting that both the operationalization of ESG and the industrial context shape observed effect sizes. Huang et al. (2020) further show that macroeconomic fluctuations contribute to mixed findings, underscoring that average results mask significant cross-contextual variation. This heterogeneity motivates a theory-driven search for the conditions under which ESG translates into CFP.

Consumer market type is one such condition, because it determines the extent to which consumers can convert ESG performance into purchasing decisions. The Global industry classification standard (GICS) divides consumer-facing firms into two structurally distinct categories: consumer *discretionary* businesses, whose products are more substitutable and identity-driven, and consumer *staples* businesses, which provide essential goods with comparatively inelastic demand (MSCI & S&P Global, 2023). This structural difference matters because ESG generates financial returns primarily through two consumer-facing channels. The first is the *visibility* channel: ESG creates value only when consumers can observe and process credible sustainability information. Servaes and Tamayo (2013) demonstrate that the positive ESG–CFP relationship is concentrated among high consumer awareness firms and statistically indistinguishable from zero for low-awareness firms, establishing visibility as a structural precondition rather than a mere facilitator. The second is the consumer *power* channel: even when ESG is visible, it creates financial value only when consumers have the capacity to act on it, through willingness-to-pay premiums, brand loyalty, or product avoidance (Sen & Bhattacharya, 2001). Both channels are structurally stronger in discretionary markets, where purchases are more deliberate, substitutable, and identity-relevant, than in staples markets, where demand is more habitual and price-driven.

However, the efficacy of both channels depends on the institutional information environment. Press freedom, the extent to which journalists and media outlets can operate without political, legal, or financial interference, determines whether ESG performance is independently verified, widely disseminated, and credible to consumers (Djankov et al., 2003; El Ghouli et al., 2019; Chang et al., 2019). Where press freedom is high, the visibility channel is strengthened because consumers have access to reliable ESG information, and the consumer power channel is strengthened because that information is salient enough to influence purchasing decisions. El Ghouli et al. (2019) show that firms in high-press-freedom countries engage more consistently in ESG, suggesting that press freedom also shapes corporate incentives to invest in ESG in the first place.

1.3 Empirical gaps and thesis contribution

Despite extensive work on the ESG–CFP relationship, two empirical gaps motivate this paper.

The first gap is the absence of mechanism-aligned market-type heterogeneity testing. Although prior research routinely controls sector fixed effects, it seldom examines whether structurally distinct consumer market segments (discretionary versus staples) systematically moderate the ESG–CFP relationship. This distinction matters because the two consumer-facing channels identified above, visibility and consumer power, are structurally stronger in discretionary markets than in staples markets. Discretionary purchases are more substitutable, deliberate, and identity-relevant, making ESG attributes more salient in consumer choice (Kitzmueller & Shimshack, 2012; Sen & Bhattacharya, 2001). Yet despite this theoretical prediction, the differential impact of consumer market type on the ESG–CFP relationship has not been directly tested in prior research.

The second gap is the absence of a study that jointly tested whether consumer market type and press freedom simultaneously and interactively condition the ESG–CFP relationship. This leaves open the question of whether press freedom amplifies the ESG–CFP relationship differentially across consumer market types, a moderation-of-moderation structure that this paper tests directly.

This study addresses both gaps by estimating direct effects and ESG $\times$ PF interaction models separately within consumer discretionary and consumer staples subsamples, across a panel of 1,006 firms in 45 countries over the period 2015–2024. This subsample design allows direct comparison of ESG coefficients and interaction effects across market types, providing a cleaner test of both the market-type moderation and the press freedom amplification mechanism than a pooled interaction framework would allow (Chang et al., 2019).

2 THEORETICAL OVERVIEW

This chapter develops a theoretical framework addressing how the type of consumer market, discretionary versus staples, moderates the relationship between ESG performance and CFP, and how this moderation is itself conditioned by country-level press freedom. The argument is structured around two consumer-facing channels, the *visibility channel* and the *consumer power channel*, through which ESG performance generates financial returns. The review integrates three bodies of literature: stakeholder and consumer-behavior theory, institutional economics and meta-analytic evidence on the ESG-CFP baseline. Each section synthesizes relevant peer-reviewed research and culminates in, or directly motivates, testable hypotheses.

2.1 Stakeholder theory, consumer power and market type

Stakeholder theory holds that firms create value not solely by maximizing shareholder returns, but by managing relationships with a broad range of constituencies, including employees, communities, suppliers, and consumers (Freeman, 1984). Firms that invest in cooperative, trustworthy stakeholder relationships lower contracting and monitoring costs, reduce employee turnover, and foster consumer loyalty, all of which translate into superior CFP (Jones, 1995). Applied to ESG, this framework predicts that ESG performance generates financial returns primarily when it directly strengthens firm–stakeholder relationships, and in particular when those relationships involve consumers with the structural capacity to reward or sanction firms through their purchasing decisions.

The baseline consumer channel is established by Luo and Bhattacharya (2006), who demonstrate that customer satisfaction mediates the relationship between ESG and firm market value: ESG initiatives enhance consumer satisfaction, which in turn drives firm valuation. This positions ESG → consumer response → CFP as the core causal chain. However, this chain is conditional. Two preconditions must be met for it to operate.

The first is the *visibility channel*: consumers must be able to observe and process credible ESG information before they can respond to it. Servaes and Tamayo (2013) provide the most direct evidence for this condition, showing that the positive ESG–CFP relationship is concentrated among firms with high consumer awareness, proxied by advertising intensity, and is

statistically indistinguishable from zero for low-awareness firms. This finding establishes visibility not merely as a facilitator but as a structural precondition: without it, the consumer channel cannot function regardless of the quality of a firm's ESG performance.

The second is the *consumer power channel*: even when ESG is visible, it generates financial value only when consumers have the structural capacity to act on it. Following Mitchell et al. (1997), stakeholders differ in their power, legitimacy, and urgency, and consequently in the extent to which they can impose financial consequences on firms. Consumer power in this sense refers to the ability of consumers to reward ESG-superior firms or penalize ESG-inferior ones through willingness-to-pay premiums, brand loyalty, or product avoidance (Sen & Bhattacharya, 2001). This capacity is not uniform across markets; it varies systematically with the nature of the purchase.

Consumer market type, as classified by GICS, directly determines the strength of both channels. In consumer discretionary markets, products and services are more substitutable, purchases are more deliberate and identity-driven, and non-price attributes such as brand reputation and ethical standing are more competitively salient (Kitzmueller & Shimshack, 2012). These structural features increase both the likelihood that consumers notice ESG differences between firms, strengthening the visibility channel, and their capacity to act on those differences through purchase decisions, strengthening the consumer power channel. Porter and Kramer (2006) further argue that when competition operates partly on non-price dimensions, ESG can function as a differentiating factor supporting premium pricing, a dynamic more characteristic of discretionary than staples categories. Strahilevitz and Myers (1998) provide empirical support, demonstrating that ethical product attributes elicit stronger consumer responses for non-essential purchases than for necessities, while Dhar and Wertenbroch (2000) show that deliberate, identity-relevant choice, more typical of discretionary consumption, is associated with greater willingness to pay for ethical attributes. In consumer staples markets, by contrast, demand is more inelastic and price-sensitive, purchases are more habitual, and ESG-based differentiation is less likely to translate into measurable demand effects even when ESG information is available.

Based on these arguments, the following hypothesis is proposed:

H1 (Market-Type Moderation): *The positive association between ESG performance and CFP is stronger for firms in consumer discretionary markets than for firms in consumer staples markets.*

2.2 Press freedom as an institutional amplifier

The strength of both channels identified above (visibility and consumer power) is not fixed. It varies with the institutional information environment in which firms operate, and in particular with the degree of press freedom. Press freedom refers to the capacity of media outlets and journalists to operate without political, legal, or financial interference (Djankov et al., 2003). Following North (1991), press freedom is treated here as an institutional constraint that shapes the incentive structures governing both corporate behavior and consumer decision-making: by autonomously generating and disseminating information about corporate conduct, a free press reduces information asymmetries between firms and their stakeholders.

Press freedom amplifies the visibility channel by increasing the credibility, accuracy, and reach of ESG information available to consumers. Where press freedom is high, ESG performance is subject to independent scrutiny; journalists can investigate corporate sustainability claims, expose greenwashing, and disseminate verified ESG information widely. This makes it easier for consumers to identify genuine ESG performers and harder for firms to sustain unwarranted reputational advantages. El Ghouli et al. (2019), examining 4,396 firms across 42 countries, find that firms in high-press-freedom countries engage more consistently in ESG, suggesting that media freedom strengthens reputational incentives for authentic ESG investment. Chang et al. (2019) provide the most direct cross-national evidence, demonstrating across 19,130 firm-year observations in 40 countries that the positive ESG–CFP relationship in consumer-facing contexts obtains only under conditions of sufficient media freedom, and becomes negative or statistically insignificant where press freedom is limited. This finding reframes press freedom not as a background institutional control but as a necessary condition for the visibility channel to function.

Press freedom also amplifies the consumer power channel by increasing the reputational cost of misleading ESG claims. Where investigative journalism is free to operate, firms that claim

ESG credentials without genuine performance face a credible risk of exposure and reputational damage. This increases the financial incentive to invest in authentic ESG rather than cosmetic compliance, and in turn increases the signal value of ESG performance to consumers. This mechanism is strongest in discretionary markets, where consumer-driven reputational effects are already operative: when consumers can both observe credible ESG information and act on it through purchase decisions, the reputational consequences of poor ESG conduct are most financially significant. Dyck et al. (2008) provide empirical support for this accountability function, demonstrating that media coverage of corporate governance infractions in Russia produced measurable improvements in governance outcomes, illustrating how media-induced accountability translates into tangible behavioral and financial consequences.

Taken together, press freedom amplifies both channels more strongly in discretionary than in staples markets. The visibility channel is stronger in discretionary markets because consumers are already more motivated to seek out and process ESG information, given the deliberate and identity-relevant nature of their purchases (Dhar et al., 2000). The consumer power channel is stronger in discretionary markets because consumers there have greater structural capacity to reward or penalize firms through their choices. Press freedom magnifies both of these existing advantages, but where the underlying channels are structurally weak, as in staples markets, where purchases are habitual and price-driven rather than deliberate and identity-relevant, amplification has less to work with. The predicted result is therefore a larger discretionary-versus-staples differential in ESG–CFP slopes in high-press-freedom countries, and an attenuated differential where press freedom is low.

H2 (Press-Freedom Amplification): *The discretionary-versus-staples difference in the ESG–CFP association is larger in countries with higher press freedom and attenuated where press freedom is low, because press freedom amplifies both the visibility channel and the consumer power channel through which ESG generates financial returns in consumer-facing markets.*

2.3 Definitions and conceptual framing

ESG performance refers to a firm's aggregate sustainability profile across environmental, social, and governance dimensions, as evaluated by an external rating agency (Berg et al., 2022). In this paper, ESG performance specifically denotes the quantitative score assigned by

Bloomberg, which reflects a firm's management of material sustainability risks and opportunities across all three dimensions. For example, a firm scoring 8 out of 10 would be assessed as demonstrating strong governance structures, low environmental risk exposure, and sound labor practices relative to its peers. This score serves as the principal predictor in the empirical models, with Bloomberg selected as the data source for its comprehensive global coverage and widespread use in empirical ESG research (Fatemi et al., 2017). The implications of relying on a single provider are discussed in section 5.3.

CFP encompasses both accounting-based and market-based measures, which capture fundamentally distinct dimensions of firm performance (Orlitzky et al., 2003). This study uses two dependent variables. Return on assets (ROA) is the accounting-based measure, calculated as net income divided by total assets. It captures short-term operational efficiency, the extent to which ESG investment translates into tangible cost savings, reduced employee turnover, or improved resource management. Tobin's Q is the market-based measure, calculated as total market capitalization plus total debt divided by total assets. It is included because market valuations are forward-looking: if ESG investment generates sustained consumer-driven demand advantages (through brand loyalty, willingness-to-pay premiums or product avoidance of ESG laggards), investors will price these expected future cash flows into firm's market value. Tobin's Q therefore captures the downstream end of the causal chain this paper tests. Together, the two measures allow us to assess whether ESG effects operate through operational performance, consumer-driven demand, or both.

2.4 Integrative summary

The theoretical framework developed in this chapter grounds the ESG–CFP relationship in two consumer-facing channels, visibility and consumer power, and argues that both are jointly moderated by consumer market type and amplified by press freedom. Consumer discretionary markets exhibit structurally stronger versions of both channels than consumer staples markets, generating the market-type differential tested in H1. Press freedom amplifies both channels by increasing the credibility and reach of ESG information, producing the moderation-of-moderation effect tested in H2. Table 1 summarizes the hypothesized relationships and their theoretical grounding.

Table 1. Summary of Hypotheses and Theoretical Grounding

H	Statement	Theoretical Basis	Key Sources
H1	The ESG–CFP association is stronger for consumer discretionary firms than for consumer staples firms.	Stakeholder theory; consumer behaviour varies by product category; ESG attributes more salient in deliberate, identity-driven purchases; visibility and consumer power channels structurally stronger in discretionary markets.	Freeman (1984); Servaes & Tamayo (2013); Strahilevitz & Myers (1998); Dhar & Wertenbroch (2000); Kitzmueller & Shimshack (2012)
H2	The discretionary vs. staples ESG differential is larger in high press-freedom countries and attenuated where press freedom is low.	Institutional economics; press freedom amplifies the visibility channel by increasing ESG information credibility and reach, and amplifies the consumer power channel.	North (1991); Chang et al. (2019); El Ghoul et al. (2019); Dyck et al. (2008)

3 METHODOLOGY

3.1 Overview

This chapter describes the empirical strategy used to test H1 and H2. Section 3.2 presents the sample construction and data sources. Section 3.3 defines all variables, dependent, independent, moderating, and control, and summarizes them in Table 2. Section 3.4 presents the two empirical models, and the final section discusses the estimation strategy, including the fixed-effects specification, standard error clustering, and planned robustness check.

3.2 Sample and Data Collection

3.2.1 Firm-level data

Firm-level data on ESG scores, CFP, and firm characteristics were sourced from the Bloomberg terminal. Consolidating all firm-level variables within a single provider minimizes cross-database merging errors and ensures consistency across observations. Bloomberg's ESG performance score rates firms on a scale of 0 to 10, reflecting the quality of a firm's environmental, social, and governance performance relative to sector peers. Bloomberg was selected as the data source on two grounds: its widespread use in empirical ESG research (Fatemi et al., 2017; Eccles et al., 2014), and its comprehensive coverage of globally listed firms across the consumer discretionary and consumer staples sectors over the full sample period. The implications of relying on a single ESG data provider are acknowledged and discussed in section 5.3.

3.2.2 Sector classification

The sample is restricted to firms classified within two GICS sectors: Consumer Discretionary and Consumer Staples. The GICS, co-developed by MSCI and S&P Global, is the standard industry taxonomy in both financial practice and academic ESG research (MSCI & S&P Global, 2023). Restricting the sample to these two sectors serves two purposes. First, it ensures a theoretically grounded and internally comparable market-type contrast: the structural differences between discretionary and staples markets, in purchase deliberateness, product substitutability, and ESG salience, are the precise mechanisms through which H1 is

hypothesized to operate. Second, it avoids the interpretational ambiguity of a broad multi-sector sample in which a binary sector dummy would conflate structurally heterogeneous industries. This design directly operationalizes the demand-side distinction between consumer market types that motivate the empirical strategy. The DISC subsample is larger than the staples subsample (589 firms, 3,921, vs. 417 firms, 2,803 observations,), reflecting the greater number of publicly listed firms in the consumer discretionary sector relative to consumer staples.

3.2.3 Geographic scope and country identification

The sample covers publicly listed firms across 45 countries, providing the cross-national variation in press freedom necessary to identify the moderation effect tested in H2. The country of headquarters for each firm was determined using the exchange suffix embedded in the Bloomberg ticker, for example, the "US" suffix in "AAPL US Equity" identifies the firm as US-headquartered. This country identifier links each firm-year observation to its corresponding RSF press freedom score and World Bank GDP per capita value.

A global scope is essential for the empirical identification of H2: restricting the sample to a single region would generate insufficient cross-country variation in press freedom to detect a differential moderation effect. This approach mirrors the cross-national designs of the closest empirical precedents, El Ghoul et al. (2019) draw on 42 countries and Chang et al. (2019) on 40 countries, both of which rely on international variation in media freedom to identify their interaction effects.

3.2.4 Time period

The sample spans 2015 to 2024. The lower bound of 2015 reflects two considerations. First, ESG disclosure quality improved substantially following the Paris Agreement (2015) and the subsequent proliferation of mandatory and voluntary reporting frameworks, mitigating the left-censoring problem that affects earlier data. Second, Bloomberg ESG coverage reaches sufficient global breadth from 2015 onwards to support a cross-national panel of this scope. The upper bound of 2024 corresponds to the most recent year for which both Bloomberg annual firm-level data and RSF press freedom scores are available. ESG coverage remains less comprehensive for 2015–2016, which is acknowledged as a limitation in section 5.3.

The resulting dataset is an unbalanced firm-year panel constructed through a sequential filtering process. Starting from the initial Bloomberg universe of consumer discretionary and consumer staples firms, observations with missing values on any variable entering the regression models were removed through listwise deletion. Firms with fewer than three complete firm-year observations after this deletion were subsequently excluded, ensuring that within-firm variation is estimable under the fixed-effects specification and avoiding undue influence from firms with very short panel histories. This minimum coverage threshold is standard practice in ESG panel research (Friede et al., 2015). The final regression sample comprises 1,006 firms, 6,724 firm-year observations, across 45 countries over the period 2015–2024.

3.3 *Press freedom data*

Country-year press freedom scores are drawn from the Reporters Without Borders (RSF) World Press Freedom Index. The RSF index measures the extent to which journalists and media outlets can operate free from political, economic, and legal interference, assigning each country an annual score on a 0–100 scale, where higher values indicate greater press freedom (Reporters Without Borders, 2022). The index is selected for two reasons: first, it directly operationalizes the conceptual definition of press freedom adopted in this study; second, it is the measure employed by Chang et al. (2019), whose cross-national design most closely approximates the moderation-of-moderation framework tested here. Each firm-year observation is matched to its corresponding RSF score based on the country of headquarters identified via the Bloomberg ticker suffix.

3.4 *Variable Definitions*

All variables, their operationalization, and data sources are summarized in Table 2. Two clarifications warrant mention here. First, the Bloomberg ESG Performance Score (0–10) measures the quality of a firm's sustainability performance, and is distinct from Bloomberg's ESG Disclosure Score, which captures reporting breadth. Second, all firm-level continuous variables, ROA, Tobin's Q, firm size, leverage, and sales growth, are winsorized at the 1st and 99th percentiles prior to estimation to limit the influence of extreme outliers (Servaes & Tamayo, 2013)

Table 2. Variable Definitions, Operationalisations, and Sources

Variable	Type	Definition & Operationalisation	Sign	Source
ROA	Dependent	Net income / total assets. Measures short-term operational efficiency.		Bloomberg
Tobin's Q	Dependent	(Market cap + total debt) / total assets. Captures long-run consumer-driven value creation.		Bloomberg
ESG Score	Independent (main)	Bloomberg ESG Performance Score (0–10). Measures ESG performance quality relative to sector peers.	+	Bloomberg
DISC	Sample partition	1 = Consumer Discretionary, 0 = Consumer Staples. Used to partition the sample into two subgroups for separate estimation		Bloomberg
Press Freedom (PF)	Moderator (continuous)	RSF World Press Freedom Index (0–100), country-year. Higher = freer media. Assigned by HQ country.	Mod.	RSF
ESG $\times$ PF	Two-way interaction	Product of ESG score and press freedom index. Tests whether press freedom amplifies the ESG–CFP relationship within each market type (H2).	+	Computed
Firm Size	Control	$\ln(\text{total assets})$. Controls for size differences in ESG capacity and profitability.	+ / –	Bloomberg
Leverage	Control	Total debt / total assets. Controls for capital structure effects on profitability.	–	Bloomberg
Sales Growth	Control	Year-on-year revenue change (%). Controls for firm growth trajectory.	+	Bloomberg
GDP per Capita	Control	$\ln(\text{GDP per capita})$, HQ country. Controls for cross-country development differences.	+	World Bank
Year FE (λ_t)	Control	Absorb global time trends.		
Firm FE (μ_i)	Control	Absorb time-invariant unobserved heterogeneity.		

Note: The Sign column indicates the expected direction of the relationship with CFP: + positive, – negative, + / – ambiguous, Mod. moderating. Firm Size, Leverage, Sales Growth, and GDP per Capita collectively enter the model as the control vector (Controls_{it}) in Equations (1) and (2). All firm-level financial variables are winsorised at the 1st and 99th percentiles (Servaes & Tamayo, 2013). The press freedom variable is harmonised across years so that higher scores consistently reflect greater press freedom throughout 2015–2024.

3.5 Artificial intelligence

Artificial intelligence assistance (Claude, Anthropic) was employed in this research. During data preparation, AI tools were used to clean and standardize the raw dataset exported from Bloomberg terminal, and to systematically identify the country of incorporation for each firm based on Bloomberg ticker suffixes (e.g., the "US" suffix in "AMZN US Equity"). AI assistance was further used to support the drafting and refinement of prose throughout this paper and to assist with the formulation of R code for panel data estimation. All data cleaning decisions were verified by the author against the original Bloomberg output.

3.6 Empirical Models

3.6.1 Subsample approach

To test H1 and H2, the sample is split into two subsamples, consumer discretionary firms (DISC = 1) and consumer staples firms (DISC = 0), and all models are estimated separately within each subsample. This approach allows direct comparison of coefficients across market types without relying on interaction terms estimated on the full sample. It follows the subsample design recommended for moderation analysis when the moderating variable partitions the sample into theoretically distinct groups.

3.6.2 Direct effects model (H1: market-type moderation)

Within each subsample, the following model is estimated:

$$CFP_{it} = \alpha + \beta_1 ESG_{it} + \beta_2 PF_{ct} + \beta_3 Controls_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (1)$$

where CFP_{it} is either ROA or Tobin's Q for firm i in year t ; ESG_{it} is the Bloomberg ESG performance score; PF_{ct} is the RSF press freedom score for country c in year t , included as a control variable to account for the potential confounding effect of press freedom on the ESG–CFP relationship; $Controls_{it}$ is the vector of firm-level and country-level control variables defined previously; μ_i are firm fixed effects; λ_t are year fixed effects; and ε_{it} is the idiosyncratic error term.

H1 is assessed by comparing the coefficient β_1 across the two subsamples using a z-test of slope equality (Paternoster et al., 1998). The test statistic is computed as

$$z = \frac{\hat{\beta}_{1, \text{DISC}} - \hat{\beta}_{1, \text{Staples}}}{\sqrt{SE_{\text{DISC}}^2 + SE_{\text{Staples}}^2}} \quad (3)$$

where SE denotes the firm-clustered standard error of each coefficient. If the ESG–CFP association is stronger in discretionary markets, as H1 predicts, β_1 should be larger in the DISC subsample than in the staples subsample, and the z-test should confirm that this difference is statistically significant.

3.6.3 Interaction model (H2: press freedom amplification)

To test H2, the direct effects model is extended by adding the interaction term $\text{ESG} \times \text{PF}$ within each subsample:

$$\text{CFP}_{it} = \alpha + \beta_1 \text{ESG}_{it} + \beta_2 \text{PF}_{ct} + \beta_3 (\text{ESG}_{it} \times \text{PF}_{ct}) + \beta_4 \text{Controls}_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (2)$$

The coefficient of primary interest is β_3 , which captures whether press freedom amplifies the ESG–CFP relationship within each market type. H2 predicts that β_3 should be positive and significant in the DISC subsample, where the visibility and consumer power channels are operative, and smaller or insignificant in the staples subsample. Comparing β_3 across the two subsamples provides a direct test of whether press freedom amplifies the ESG–CFP relationship differentially by market type.

Both models are estimated separately for ROA and Tobin's Q, yielding eight sets of estimates in total.

3.7 Estimation Strategy

3.7.1 Fixed-effects panel OLS

Both models are estimated using Ordinary Least Squares (OLS) with two-way fixed effects, firm and year, following Wooldridge (2010). The choice between fixed and random effects is guided by the Hausman test: under the null hypothesis, random effects are consistent and efficient; rejection of the null supports the fixed-effects specification. Firm fixed effects

absorb all time-invariant unobserved heterogeneity at the firm level, including management culture, business model, and country-of-origin influences, that could otherwise confound the ESG–CFP relationship. Year fixed effects absorb global macroeconomic shocks and time trends common to all firms in a given year, addressing the concern raised by Huang et al. (2020) that macroeconomic cycles are a significant source of heterogeneity in ESG–CFP results.

Standard errors are clustered at the firm level (Petersen, 2009). Significance levels follow: $\cdot$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Both models are estimated using the plm package in R (Croissant & Millo, 2008).

3.7.2 Robustness check

One robustness check is conducted. The ESG score is lagged by one year, replacing ESG_{it} with $ESG_{i,t-1}$, in both the direct effects and interaction models within each subsample. This addresses reverse causality concerns: prior-year ESG performance cannot be caused by current-year financial outcomes, providing a cleaner identification of the ESG→CFP direction (Servaes & Tamayo, 2013). The lagged specification is estimated for both ROA and Tobin's Q in each subsample, yielding eight additional sets of estimates reported in Appendix B.

4 RESULTS

4.1 Descriptive statistics and correlation matrix

Table 3 presents summary statistics for the final sample of 6,724 firm-year observations across 1,006 firms and 45 countries (2015–2024). The sample comprises 58.3% consumer discretionary observations (3,921) and 41.7% consumer staples (2,803). Descriptive statistics and correlations are reported for the full sample to provide an overview of the data prior to subsample estimation.

The dependent variables show substantial variation. ROA averages 7.17% (SD = 7.22), and Tobin's Q averages 2.48% (SD = 2.13), consistent with comparable cross-national ESG studies (Servaes & Tamayo, 2013; El Ghouli et al., 2019). The ESG score averages 3.11 on a 0–10 scale (SD = 1.35), reflecting Bloomberg's performance-based scoring threshold. Press freedom averages 63.2 (SD = 19.9), with a median of 71.2, confirming meaningful cross-national variation for the identification of H2.

Table 3. Descriptive Statistics

Variable	N	Mean	SD	Min	Median	Max
ROA (%)	6,724	7.166	7.219	−15.287	6.288	30.135
Tobin's Q	6,724	2.482	2.128	0.738	1.750	13.561
ESG score	6,724	3.114	1.352	0.530	2.960	7.530
Press freedom	6,724	63.209	19.926	21.080	71.220	95.180
Log total assets	6,724	10.369	2.476	6.136	9.819	17.702
Leverage	6,724	0.263	0.200	0.000	0.247	0.960
Sales growth (%)	6,724	8.826	19.959	−41.156	4.367	113.823
Log GDP per capita	6,724	10.249	1.066	6.824	10.603	11.597
DISC (dummy)	6,724	0.583	0.493	0.000	1.000	1.000

Note: N = 6,724 firm-year observations, 1,006 firms, 45 countries, 2015–2024. All continuous firm-level variables are winsorised at the 1st and 99th percentiles. Variable definitions follow Table 2.

Table 4 reports Pearson correlations. The highest correlation is between log GDP per capita and press freedom ($r = 0.592$), reflecting the documented positive relationship between national wealth and media freedom (Chang et al., 2019; El Ghouli et al., 2019). Although

elevated, both variables serve distinct theoretical roles (press freedom is the institutional moderator and GDP per capita is a macroeconomic control) and their inclusion follows the approach of Chang et al. (2019) and El Ghouli et al. (2019), who similarly include both variables in cross-national ESG–CFP models. In the fixed-effects specification, identification relies on within-country variation over time rather than cross-country differences, which substantially reduces the practical multicollinearity between these two variables. ESG correlates negatively with ROA ($r = -0.087$) and Tobin's Q ($r = -0.143$) in raw bivariate associations, consistent with firms bearing short-term ESG investment costs; within-firm estimates in Section 4.2 provide a more appropriate basis for inference.

Table 4. Pairwise Correlation Matrix

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) ROA	1.000								
(2) Tobin's Q	0.551	1.000							
(3) ESG	-0.087	-0.143	1.000						
(4) Press freedom	-0.059	-0.124	0.217	1.000					
(5) Log total assets	-0.109	-0.178	0.095	-0.078	1.000				
(6) Leverage	-0.292	-0.140	0.197	0.160	-0.087	1.000			
(7) Sales growth	0.075	0.111	-0.023	-0.103	-0.036	0.016	1.000		
(8) Log GDP pc	-0.123	-0.189	0.235	0.592	-0.312	0.193	-0.043	1.000	
(9) DISC	-0.036	-0.080	0.053	0.123	-0.119	0.099	0.049	0.215	1.000

Note: Pearson pairwise correlations. $N = 6,724$ firm-year observations. (1) ROA; (2) Tobin's Q ; (3) ESG score; (4) press freedom; (5) log total assets; (6) leverage; (7) sales growth; (8) log GDP per capita; (9) DISC dummy. The highest correlation is between log GDP per capita and press freedom ($r = 0.592$). Variable definitions follow Table 2.

4.2 Main regression results

4.2.1 Hausman test and estimator selection

The Hausman specification test strongly rejects the null hypothesis of consistent random effects in both the ROA specification ($\chi^2(6) = 58.122$, $p < 0.001$) and the Tobin's Q specification ($\chi^2(6) = 58.148$, $p < 0.001$), confirming that two-way fixed effects, firm and year, are the appropriate estimator (Wooldridge, 2010). Year fixed effects are included implicitly via the two-way specification and are not reported in the coefficient tables; their inclusion is noted in the table notes.

4.2.2 H1: Market-type moderation (model 1)

Table 5 reports the direct effects estimates for the DISC and Staples subsamples separately, with firm-clustered standard errors (Petersen, 2009). H1 is assessed by comparing the ESG coefficient β_1 across the two subsamples.

Table 5. Direct Effects of ESG on Corporate Financial Performance by Market Type (H1)

	<i>Consumer Discretionary</i>		<i>Consumer Staples</i>	
	ROA	Tobin's Q	ROA	Tobin's Q
<i>Panel A: Variable of interest</i>				
ESG score (β_1)	0.239 (0.159)	−0.063* (0.032)	0.053 (0.215)	−0.104 (0.058)
<i>Panel B: Control variables</i>				
Press freedom	−0.002 (0.024)	−0.005 (0.005)	−0.046 (0.024)	−0.008 (0.008)
Log total assets	1.319* (0.558)	−0.417* (0.180)	−0.046 (0.776)	−0.346* (0.165)
Leverage	−16.858*** (2.252)	−1.542*** (0.432)	−17.180*** (2.590)	−1.430*** (0.395)
Sales growth	0.050*** (0.005)	0.006*** (0.001)	0.044*** (0.008)	0.006** (0.002)
Log GDP per capita	1.266 (1.166)	0.277 (0.281)	3.477* (1.704)	1.161*** (0.352)
Firm FE / Year FE	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes
Observations	3,921	3,921	2,803	2,803

Note: Two-way fixed effects OLS estimated separately by market-type subsample. Firm and year fixed effects absorbed via effect = 'twoways' (Croissant and Millo, 2008). Standard errors clustered at the firm level (Petersen, 2009). H1 assessed via z-test of slope equality on β_1 across subsamples (Paternoster et al., 1998). Continuous variables winsorised at the 1st and 99th percentiles. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, $p < 0.10$. Sample: 1,006 firms, 45 countries, 2015–2024.

In the DISC subsample, $\beta_1 = 0.239$ ($p = 0.134$) for ROA and $\beta_1 = -0.063$ ($p = 0.047$) for Tobin's Q. In the Staples subsample, $\beta_1 = 0.053$ ($p = 0.805$) for ROA and $\beta_1 = -0.104$ ($p = 0.073$) for Tobin's Q. To formally test whether these coefficients differ across subsamples, a z-test of slope equality is applied (Paternoster et al., 1998). For ROA, $z = 0.69$ ($p = 0.49$), for Tobin's Q, $z = 0.63$ ($p = 0.53$). Neither difference is statistically significant.

For Tobin's Q, both coefficients are negative, which does not support H1's directional prediction. H1 is therefore not supported. The negative ESG coefficients for Tobin's Q in both subsamples are consistent with within-firm ESG increases being associated with short-term market valuation costs. Investors price the cost of ESG investment before its consumer-driven benefits materialize in revenues. This pattern is addressed in Model 2, where the interaction with press freedom reveals the conditions under which ESG investment translates into positive market valuations

4.2.3 H2: Press freedom amplification (model 2)

Table 6 reports the interaction model estimates, adding $ESG \times RSF$ to each subsample. The coefficient of interest is β_3 ($ESG \times PF$), capturing whether press freedom amplifies the ESG–CFP relationship within each market type.

Table 6. ESG $\times$ Press Freedom Interaction Effects by Market Type (H2)

	<i>Consumer Discretionary</i>		<i>Consumer Staples</i>	
	ROA	Tobin's Q	ROA	Tobin's Q
<i>Panel A: Variables of interest</i>				
ESG score (β_1)	−0.439 (0.273)	−0.239** (0.093)	0.527 (0.443)	−0.145 (0.161)
Press freedom (β_2)	−0.034 (0.025)	−0.013 (0.008)	−0.022 (0.036)	−0.010 (0.011)
ESG $\times$ PF (β_3)	0.012** (0.004)	0.003* (0.001)	−0.009 (0.008)	0.001 (0.002)
<i>Panel B: Control variables</i>				
Log total assets	1.364* (0.559)	−0.405* (0.176)	−0.148 (0.790)	−0.338* (0.171)
Leverage	−16.828*** (2.233)	−1.534*** (0.428)	−17.120*** (2.592)	−1.435*** (0.396)
Sales growth	0.050*** (0.005)	0.006*** (0.001)	0.044*** (0.008)	0.006*** (0.002)
Log GDP per capita	1.465 (1.174)	0.329 (0.281)	3.269 (1.722)	1.179*** (0.338)
Firm FE / Year FE	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes
Observations	3,921	3,921	2,803	2,803

Note: Two-way fixed effects OLS estimated separately by market-type subsample. Firm and year fixed effects absorbed via effect = 'twoways' (Croissant and Millo, 2008). Standard errors clustered at the firm level (Petersen, 2009). H2 assessed by comparing (ESG $\times$ PF) across subsamples. Continuous variables winsorised at the 1st and 99th percentiles. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, $\cdot$ $p < 0.10$. Sample: 1,006 firms, 45 countries, 2015–2024.

In the DISC subsample, $\beta_3 = 0.0115$ ($p = 0.009$) for ROA and $\beta_3 = 0.003$ ($p = 0.038$) for Tobin's Q , both statistically significant. In the Staples subsample, $\beta_3 = -0.0085$ ($p = 0.270$) for ROA and $\beta_3 = 0.0007$ ($p = 0.752$) for Tobin's Q , both insignificant. The contrast is sharp: press freedom amplifies the ESG–CFP relationship in discretionary markets but not in staples markets,

directly consistent with H2's prediction. H2 is therefore supported by the interaction model estimates.

In the interaction model, the negative ESG main-effect coefficient for Tobin's Q reflects the partial effect of ESG when press freedom equals zero, a value outside the empirical range of the data (minimum RSF = 21.08). The positive and significant β_3 indicates that press freedom progressively offsets this negative baseline effect as it increases, consistent with the theoretical prediction that ESG generates market value only when consumers have access to credible ESG information.

Across all specifications and both subsamples, control variable estimates are consistent with theoretical expectations. Leverage is negative and highly significant, reflecting the well-documented negative relationship between financial risk and firm performance. Sales growth is positive and significant, consistent with growth firms outperforming on both ROA and Tobin's Q. Log GDP per capita is positive and significant in the staples subsample, reflecting the role of macroeconomic development in supporting staples firm profitability.

4.3 Robustness check

4.3.1 One-year lagged ESG

Table 7 reports the robustness check results using a one-year lagged ESG specification. Replacing ESG_{it} with $ESG_{i,t-1}$ addresses reverse causality concerns (Servaes & Tamayo, 2013). In the direct effects models, the lagged ESG coefficient remains insignificant in the DISC subsample for ROA ($\beta_1 = 0.019$, $p = 0.914$) but becomes significant for Tobin's Q ($\beta_1 = -0.099$, $p = 0.010$). In the staples subsample, the lagged ESG coefficient remains insignificant for ROA ($\beta_1 = -0.051$, $p = 0.827$) and significant for Tobin's Q ($\beta_1 = -0.225$, $p = 0.003$). The negative lagged ESG coefficients for Tobin's Q in both subsamples are consistent with markets pricing the cost of ESG investment in the short term, before consumer-driven demand advantages materialize in revenues. A pattern also observed in the contemporaneous direct effects models. In the interaction models, the lagged $ESG \times RSF$ coefficient remains positive and significant in the DISC subsample for ROA ($\beta_3 = 0.011$, $p = 0.046$) and marginally significant for Tobin's Q ($\beta_3 = 0.003$, $p = 0.052$). In the Staples subsample, the lagged interaction is insignificant for ROA ($\beta_3 = -0.006$, $p = 0.475$). The DISC interaction results therefore hold under the lagged specification, confirming the robustness of the H2 finding. One exception is

the lagged ESG $\times$ RSF coefficient in the consumer staples subsample for Tobin's Q ($\beta = 0.006$, $p = 0.026$), which achieves significance under the lagged specification despite being insignificant in the contemporaneous model ($p = 0.752$). This result is interpreted with caution. It is the only significant interaction coefficient in the staples subsample and is inconsistent with the remaining staples estimates. With eight interaction tests conducted in total, the probability of obtaining at least one false positive by chance at $\alpha = 0.05$ is approximately 34% ($1 - 0.95^8$), suggesting this isolated result is more likely a multiple-testing artefact than genuine press freedom amplification in staples markets.

Table 7. Robustness Check: One-Year Lagged ESG Score

	<i>Consumer Discretionary</i>		<i>Consumer Staples</i>	
	ROA	Tobin's Q	ROA	Tobin's Q
<i>Panel A: Direct effects (H1)</i>				
ESG _{t-1} (β_1)	0.019	-0.099**	-0.051	-0.225**
	(0.178)	(0.038)	(0.236)	(0.076)
<i>Panel B: Interaction model (H2)</i>				
ESG _{t-1} (β_1)	-0.646	-0.290*	0.289	-0.580**
	(0.372)	(0.114)	(0.524)	(0.183)
ESG _{t-1} $\times$ PF (β_3)	0.011*	0.003	-0.006	0.006*
	(0.006)	(0.002)	(0.008)	(0.003)
Firm FE / Year FE	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes

Note: Two-way fixed effects OLS estimated separately by market-type subsample. Firm and year fixed effects absorbed via effect = 'twoways' (Croissant and Millo, 2008). Standard errors clustered at the firm level (Petersen, 2009). Robustness check with one-year lagged ESG score. H2 assessed by comparing (ESG $\times$ PF) across subsamples. Continuous variables winsorised at the 1st and 99th percentiles. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, $p < 0.10$. Sample: 1,006 firms, 45 countries, 2015–2024.

4.4 Summary of results

H1 is not supported: a z-test of slope equality confirms that the difference in ESG coefficients between the DISC and staples subsamples is not statistically significant ($z = 0.69$, $p = 0.49$ for ROA; $z = 0.63$, $p = 0.53$ for Tobin's Q). H2 is supported: the ESG $\times$ RSF interaction coefficient is positive and significant in the DISC subsample for both ROA and Tobin's Q, and insignificant

in the staples subsample, confirming that press freedom amplifies the ESG–CFP relationship specifically in discretionary markets. This finding holds under the one-year lagged ESG specification for ROA in the DISC subsample. Taken together, the results suggest that the institutional information environment, captured by press freedom, is a driver of ESG financial returns in consumer-facing markets, and that this mechanism operates specifically through the visibility and consumer power channels that are structurally stronger in discretionary markets.

5 CONCLUSION

5.1 Summary and answer to the research question

This paper sets out to answer the following research question: How does the type of consumer market (discretionary vs. staples) impact the relationship between ESG performance and CFP, and how does this difference vary across countries with different levels of media press freedom? Drawing on stakeholder theory, consumer behavior research, and institutional economics, two hypotheses were developed and tested on a panel of 1,006 publicly listed firms across 45 countries over the period 2015–2024.

H1 predicted that the ESG–CFP association would be stronger for consumer discretionary firms than for consumer staples firms, because the visibility and consumer power channels through which ESG generates financial returns, are structurally stronger in deliberate, identity-driven purchase contexts. H2 predicted that press freedom would amplify the ESG–CFP relationship specifically in discretionary markets, because a free press strengthens both channels by increasing the credibility, reach, and reputational salience of ESG information.

The direct effects models do not support H1. The ESG coefficient is larger in the DISC subsample than in the staples subsample for ROA, which is directionally consistent with H1, but a z-test of slope equality confirms that this difference is not statistically significant ($z = 0.69$, $p = 0.49$ for ROA; $z = 0.63$, $p = 0.53$ for Tobin's Q). For Tobin's Q, both coefficients are negative, which does not support the directional prediction of H1.

H2 is supported. The ESG $\times$ PF interaction coefficient is positive and significant in the DISC subsample for both ROA ($\beta_3 = 0.0115$, $p = 0.009$) and Tobin's Q ($\beta_3 = 0.003$, $p = 0.038$), and insignificant in the staples subsample for both dependent variables. This contrast holds under the one-year lagged ESG specification for ROA in the DISC subsample ($\beta_3 = 0.011$, $p = 0.046$), confirming the robustness of the finding. Press freedom amplifies the ESG–CFP relationship specifically in discretionary markets, consistent with the theoretical prediction that the visibility and consumer power channels are most operative in contexts where purchases are deliberate and identity-relevant.

In direct response to the research question: consumer market type alone does not produce a statistically detectable differential in the ESG–CFP relationship. However, when press freedom is considered, a clear pattern emerges; the ESG–CFP relationship is amplified by press freedom specifically in discretionary markets, and not in staples markets. The answer to the research question is therefore conditional: discretionary markets exhibit a stronger ESG–CFP relationship than staples markets, but only in countries where press freedom enables consumers to observe and act on ESG information. Where press freedom is limited, the market-type distinction disappears.

These two findings are theoretically coherent. The absence of a significant direct ESG–CFP differential between market types reflects the fact that the ESG effect in discretionary markets is not uniform, it depends critically on the press freedom environment. In high-press-freedom countries, ESG investment translates into financial returns for discretionary firms; in low-press-freedom countries, it does not. When averaged across all press freedom environments, the differential disappears, which is why H1 is not supported while H2 is. Press freedom therefore plays a central conditioning role in the consumer-facing ESG–CFP mechanism, beyond that of a simple contextual moderator.

5.2 Theoretical and practical implications

Despite the absence of support for H1, this study makes several contributions to the literature. Theoretically, it provides direct evidence that press freedom amplifies the ESG–CFP relationship differentially across consumer market types. Prior work has examined press freedom as a moderator of ESG engagement (El Ghouli et al., 2019) and firm value (Chang et al., 2019), and consumer awareness as a moderator of ESG returns (Servaes & Tamayo, 2013), but no study has jointly tested whether press freedom operates differently in discretionary versus staples markets. The subsample design adopted reveals a pattern that a pooled interaction framework would mask: the press freedom mechanism is specific to discretionary markets, where the structural conditions for consumer-driven ESG returns are present.

The finding also reframes the null result for H1. The absence of a significant direct ESG–CFP differential between market types is not evidence against the theoretical framework, it reflects the contingent nature of the ESG return mechanism. ESG generates financial returns

in discretionary markets not unconditionally, but specifically when consumers have access to credible, independently verified ESG information. This is a more precise and theoretically parsimonious account of when and where ESG investment pays off.

For practitioners, the findings carry a clear message. Managers of consumer discretionary firms operating in high-press-freedom environments have the strongest empirical case for ESG investment as a financial strategy. The channels that convert ESG performance into consumer-driven revenue advantages (visibility and consumer power) are most operative in these contexts. In low-press-freedom environments, or in staples markets regardless of press freedom, the financial case for ESG investment is weaker and should not be overstated. In concrete terms, the ESG–CFP mechanism operates most strongly in countries classified as 'Good' by RSF (RSF > 75) (Reporters Without Border, 2022), such as Norway, New Zealand and Canada, and is absent in countries classified as 'Difficult' or 'Very serious' (RSF < 40), such as China, Saudi Arabia and Turkey, where consumers have limited access to independently verified ESG information

5.3 Limitations

Several limitations constrain the interpretation of the empirical results and should inform the reading of this research.

The most significant is the limited within-firm variation in ESG scores under the fixed-effects specification. Bloomberg ESG performance scores change slowly at the firm level, the within-firm standard deviation is approximately 0.52 on a 0–10 scale across the sample, which mechanically attenuates the precision of all ESG-related coefficient estimates. Two-way fixed effects, while methodologically rigorous, exploit only this within-firm time variation, and the low signal-to-noise ratio makes it structurally difficult to detect effects of moderate size. This constraint is known in ESG panel research and is not specific to this study.

A second constraint concerns the exclusive reliance on Bloomberg ESG performance scores as the measure of ESG performance. The ESG rating literature documents substantial divergence across providers, with cross-provider correlations as low as 0.38 to 0.71 (Berg et al., 2022). Results may therefore not generalize to studies using alternative ESG data sources such as MSCI, Sustainalytics, or Refinitiv. The single-provider design was chosen for

consistency and coverage, but future research should examine whether the findings hold across rating agencies.

Restricting the sample to consumer discretionary and consumer staples firms also limits external validity. The mechanisms identified here, the visibility channel and the consumer power channel, are less directly applicable to industries where CFP is driven primarily by institutional investors, regulatory compliance, or business-to-business relationships.

Regarding the press freedom measure, the RSF World Press Freedom Index undergoes a methodological revision in 2022, requiring harmonization across the sample period. Although scores were harmonized to ensure directional consistency, residual comparability issues across the pre- and post-2022 periods cannot be fully ruled out. Additionally, the index is a country-year measure assigned at the headquarters level, which may not accurately capture the press freedom environment in the markets where a multinational firm's consumers are actually located.

Finally, the panel covers 2015–2024, a period that includes significant macroeconomic disruptions, most notably the COVID-19 pandemic (2020–2021) and the inflationary environment of 2022–2023, which may have temporarily decoupled ESG investment from CFP. Year fixed effects absorb aggregate time shocks, but firm-level responses to these disruptions may introduce heterogeneity that is not fully controlled for.

5.4 *Directions for future research*

The results of this study open several avenues for future research. First, the significant ESG × PF interaction in the DISC subsample suggests that the institutional information environment deserves closer attention in ESG–CFP research. Future studies could examine whether other dimensions of media quality, such as social media penetration, investigative journalism capacity, or media concentration, produce similar amplification effects in discretionary markets.

Second, the within-variation constraint identified here points to the value of alternative identification strategies. Event-study designs around major ESG-related events, inclusion in or exclusion from sustainability indices, greenwashing controversies, or major regulatory announcements, would generate sharper identification of causal ESG effects without relying on slow-moving panel variation. Difference-in-differences designs exploiting exogenous

shocks to press freedom, such as changes in media ownership laws or press freedom regressions following political transitions, could provide cleaner identification of the H2 mechanism.

Third, future work could extend the subsample framework to other institutional moderators beyond press freedom. Consumer activism intensity, the stringency of national ESG reporting requirements, or the depth of local capital markets are all plausible amplifiers of the consumer-facing channels identified in this thesis.

Finally, replicating the analysis with alternative ESG data providers would allow an assessment of the extent to which results are sensitive to measurement choices. Given the documented divergence across rating agencies (Berg et al., 2022), robustness across providers would substantially strengthen confidence in the identified effects.

6 References

- Berg, F., Kölbel, J. F., & Rigobon, R. (2022). Aggregate confusion: The divergence of ESG ratings. *Review of Finance*, 26(6), 1315–1344. <https://doi.org/10.1093/rof/rfac033>
- Brambor, T., Clark, W. R., & Golder, M. (2006). Understanding interaction models: Improving empirical analyses. *Political Analysis*, 14(1), 63–82. <https://doi.org/10.1093/pan/mpi014>
- Chang, K., Shim, H., & Yi, T. D. (2019). Corporate social responsibility, media freedom, and firm value. *Finance Research Letters*, 30, 1–7. <https://doi.org/10.1016/j.frl.2019.03.019>
- Croissant, Y., & Millo, G. (2008). Panel Data Econometrics in R: The plm Package. *Journal of Statistical Software*, 27(2). <http://www.jstatsoft.org/>
- Dhar, R., & Wertenbroch, K. (2000). Consumer choice between hedonic and utilitarian goods. *Journal of Marketing Research*, 37(1), 60–71. <https://doi.org/10.1509/jmkr.37.1.60.18718>
- Djankov, S., McLiesh, C., Nenova, T., & Shleifer, A. (2003). Who owns the media? *Journal of Law and Economics*, 46(2), 341–381. <https://doi.org/10.1086/378663>
- Dyck, A., Volchkova, N., & Zingales, L. (2008). The Corporate Governance Role of the Media: Evidence from Russia. In American Finance Association, *The Journal of Finance* (Vol. 63, Issue 3, pp. 1093–1135). Wiley for the American Finance Association. <https://www.jstor.org/stable/25094468>
- Eccles, R. G., Ioannou, I., & Serafeim, G. (2014). The impact of corporate sustainability on organizational processes and performance. *Management Science*, 60(11), 2835–2857. <https://www.jstor.org/stable/24550546>
- El Ghoul, S., Guedhami, O., Nash, R., & Patel, A. (2019). New evidence on the role of the media in corporate social responsibility. *Journal of Business Ethics*, 154–1051, 1051–1079. <https://doi.org/10.1007/s10551-016-3354-9>
- Fatemi, A., Glaum, M., & Kaiser, S. (2017). ESG performance and firm value: The moderating role of disclosure. *Global Finance Journal*, 38, 45–64. <https://doi.org/10.1016/j.gfj.2017.03.001>
- Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Pitman.
- Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: Aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment*, 5(4), 210–233. <https://doi.org/10.1080/20430795.2015.1118917>
- Huang, K., Sim, N., & Zhao, H. (2020). Corporate social responsibility, corporate financial performance and the confounding effects of economic fluctuations: A meta-analysis. *International Review of Financial Analysis*, 70, 101504. <https://doi.org/10.1016/j.irfa.2020.101504>
- Jones, T. M. (1995). Instrumental Stakeholder Theory: a synthesis of Ethics and Economics. *The Academy of Management Review*, 20–20(2), 404–437. <https://www.jstor.org/stable/258852>
- Kitzmüller, M., & Shimshack, J. (2012). Economic perspectives on corporate social responsibility. *Journal of Economic Literature*, 50(1), 51–84. <https://doi.org/10.1257/jel.50.1.51>

- Luo, X., & Bhattacharya, C. B. (2006). Corporate social responsibility, customer satisfaction, and market value. *Journal of Marketing*, 70(4), 1–18. <https://doi.org/10.1509/jmkg.70.4.1>
- Mitchell, R. K., Agle, B. R., & Wood, D. J. (1997). Toward a theory of stakeholder identification and salience: defining the principle of who and what really counts. *The Academy of Management Review*, 22–22(4), 853–886. <https://www.istor.org/stable/259247>
- MSCI & S&P Global. (2023). *Global Industry Classification Standard (GICS) Methodology*. MSCI Inc. and S&P Global. Available at: <https://www.msci.com/our-solutions/indexes/gics>
- North, D. C. (1991). Institutions. In *Journal of Economic Perspectives* (No. 1; Vol. 5, pp. 97–112).
- Orlitzky, M., Schmidt, F. L., & Rynes, S. L. (2003). Corporate Social and Financial Performance: A Meta-analysis. *Organization Studies*, 24(3), 403–441. <https://www.sagepublications.com>
- Paternoster, R., Brame, R., Mazerolle, P., & Piquero, A. (1998). Using the correct statistical test for the equality of regression coefficients. *Criminology*, 36(4), 859–866. <https://doi.org/10.1111/j.1745-9125.1998.tb01268.x>
- Petersen, M. A. (2009). Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies*, 22(1), 435–480. <https://doi.org/10.1093/rfs/hhn053>
- Porter, M. E., & Kramer, M. R. (2006). Strategy and society: The link between competitive advantage and corporate social responsibility. *Harvard Business Review*, 84(12), 78–92. <https://hbr.org/2006/12/strategy-and-society-the-link-between-competitive-advantage-and-corporate-social-responsibility>
- Reporters Without Borders. (2022). Methodology used for compiling the World Press Freedom Index. RSF. <https://rsf.org/en/index-methodologie-2022>
- Sen, S., & Bhattacharya, C. B. (2001). Does Doing Good Always Lead to Doing Better? Consumer Reactions to Corporate Social Responsibility. *Journal of Marketing Research*, 38(2), 225–243.
- Servaes, H., & Tamayo, A. (2013). The impact of corporate social responsibility on firm value: The role of customer awareness. *Management Science*, 59(5), 1045–1061. <https://doi.org/10.1287/mnsc.1120.1630>
- Strahilevitz, M., & Myers, J. G. (1998). Donations to charity as purchase incentives: How well they work may depend on what you are trying to sell. *Journal of Consumer Research*, 24(4), 434–446. <https://doi.org/10.1086/209519>
- Vishwanathan, P., van Oosterhout, H., Heugens, P. P. M. A. R., Duran, P., & van Essen, M. (2020). Strategic CSR: A concept building meta-analysis. *Journal of Management Studies*, 57(2), 314–350. <https://doi.org/10.1111/joms.12514>
- Wang, Q., Dou, J., & Jia, S. (2016). A meta-analytic review of corporate social responsibility and corporate financial performance: The moderating effect of contextual factors. *Business & Society*, 55(8), 1083–1121. <https://doi.org/10.1177/0007650315584317>
- Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data*. The MIT Press. <https://ipcig.org/evaluation/apoio/Wooldridge%20-%20Cross-section%20and%20Panel%20Data.pdf>

7 Appendices

7.1 Appendix A: R script

This annex presents the complete R script used for data preparation, panel regression estimation, and robustness checks. The script was executed in RStudio (R version 4.2.3) using the plm package for panel data estimation with two-way fixed effects and firm-clustered standard errors (Croissant & Millo, 2008).

Section 1 — Load Packages

```
library(readxl)
library(tidyverse)
library(plm)
library(lmtest)
library(sandwich)
library(stargazer)
library(openxlsx)
```

Section 2 — Import Data

```
df_raw <- read_excel("~/Desktop/final data set R ready.xlsx",
sheet = "Regression Panel",
skip = 1)

cat("Rows:", nrow(df_raw), "\n")
cat("Firms:", n_distinct(df_raw$Ticker), "\n")
cat("Countries:", n_distinct(df_raw$Country), "\n")
```

Section 3 — Prepare Data

```
# Remove duplicates, filter missing Sales_Growth,
# keep Year >= 2016, enforce minimum 3 obs per firm
df <- df_raw %>%
distinct() %>%
filter(!is.na(Sales_Growth)) %>%
filter(Year >= 2016) %>%
group_by(Ticker) %>%
filter(n() >= 3) %>%
```

```

ungroup()

# Winsorize function (1st and 99th percentiles)
winsorize <- function(x, p = 0.01) {
  lo <- quantile(x, p, na.rm = TRUE)
  hi <- quantile(x, 1 - p, na.rm = TRUE)
  pmax(pmin(x, hi), lo)
}

# Apply winsorization to continuous variables
df <- df %>%
  mutate(
    ROA = winsorize(ROA),
    Tobin_Q = winsorize(Tobin_Q),
    Leverage = winsorize(Leverage),
    Sales_Growth = winsorize(Sales_Growth),
    Log_Total_Assets = winsorize(Log_Total_Assets)
  )

# Compute interaction term for H2 (ESG x press freedom)
df <- df %>%
  mutate(
    ESG_x_PF = ESG_SCORE * RSF_Press_Freedom
  )

```

Section 4 — Descriptive Statistics

```

desc_vars <- c("ROA", "Tobin_Q", "ESG_SCORE", "RSF_Press_Freedom",
  "Log_Total_Assets", "Leverage", "Sales_Growth",
  "Log_GDP_per_capita", "DISC")

desc_stats <- df %>%
  select(all_of(desc_vars)) %>%
  summarise(across(everything(), list(
    N = ~sum(!is.na(.)),
    Mean = ~round(mean(., na.rm = TRUE), 3),
    SD = ~round(sd(., na.rm = TRUE), 3),
    Min = ~round(min(., na.rm = TRUE), 3),

```

```

P25 = ~round(quantile(., 0.25, na.rm = TRUE), 3),
Med = ~round(median(., na.rm = TRUE), 3),
P75 = ~round(quantile(., 0.75, na.rm = TRUE), 3),
Max = ~round(max(., na.rm = TRUE), 3)
)))

# Reshape to long format for readability
desc_stats_long <- desc_stats %>%
pivot_longer(everything(), names_to = c("Variable", ".value"),
names_sep = "_(?=[^_]+$)")

cor_matrix <- df %>%
select(all_of(desc_vars)) %>%
cor(use = "pairwise.complete.obs") %>%
round(3)

cat("=== DESCRIPTIVE STATISTICS ===\n")
print(desc_stats_long, row.names = FALSE)

cat("\n=== CORRELATION MATRIX ===\n")
print(cor_matrix)

cat("\n=== SECTOR SPLIT ===\n")
cat("Consumer Discretionary (DISC=1):", sum(df$DISC == 1), "obs,",
round(mean(df$DISC) * 100, 1), "%\n")
cat("Consumer Staples (DISC=0):", sum(df$DISC == 0), "obs,",
round((1 - mean(df$DISC)) * 100, 1), "%\n")

```

Section 5 — Set Up Panel Data

```

pdata <- pdata.frame(df, index = c("Ticker", "Year"))

# Split into DISC and non-DISC subsamples
df_disc <- df %>% filter(DISC == 1)
df_staples <- df %>% filter(DISC == 0)

```

```
pdata_disc <- pdata.frame(df_disc, index = c("Ticker", "Year"))
pdata_staples <- pdata.frame(df_staples, index = c("Ticker", "Year"))

cat("\nSubsample sizes:\n")

cat("DISC subsample:", nrow(df_disc), "obs,", n_distinct(df_disc$Ticker), "firms\n")
cat("Staples subsample:", nrow(df_staples), "obs,", n_distinct(df_staples$Ticker),
"firms\n")
```

Section 6 — Hausman Test

```
# Run on full sample to justify fixed effects specification
m_hausman_fe_roa <- plm(ROA ~ ESG_SCORE + RSF_Press_Freedom +
Log_Total_Assets + Leverage + Sales_Growth + Log_GDP_per_capita,
data = pdata, model = "within", effect = "twoways")

m_hausman_re_roa <- plm(ROA ~ ESG_SCORE + RSF_Press_Freedom +
Log_Total_Assets + Leverage + Sales_Growth + Log_GDP_per_capita,
data = pdata, model = "random", effect = "twoways")

m_hausman_fe_q <- plm(Tobin_Q ~ ESG_SCORE + RSF_Press_Freedom +
Log_Total_Assets + Leverage + Sales_Growth + Log_GDP_per_capita,
data = pdata, model = "within", effect = "twoways")

m_hausman_re_q <- plm(Tobin_Q ~ ESG_SCORE + RSF_Press_Freedom +
Log_Total_Assets + Leverage + Sales_Growth + Log_GDP_per_capita,
data = pdata, model = "random", effect = "twoways")

cat("\n=== HAUSMAN TEST (ROA) ===\n")
print(phtest(m_hausman_fe_roa, m_hausman_re_roa))

cat("\n=== HAUSMAN TEST (TOBIN'S Q) ===\n")
print(phtest(m_hausman_fe_q, m_hausman_re_q))
```

Section 7 — Direct Effects Models (H1)

```
# CFP =  $\beta_1$ *ESG +  $\beta_2$ *RSF + controls + firm FE + year FE
```

```

# Estimated separately for DISC and Staples subsamples
# H1: compare  $\beta_1$  across the two subsamples
# Note: year FE included via effect = "twoways"; mention in table notes
# =====

# --- DISC subsample ---
m_direct_disc_roa <- plm(ROA ~ ESG_SCORE + RSF_Press_Freedom +
  Log_Total_Assets + Leverage + Sales_Growth + Log_GDP_per_capita,
  data = pdata_disc, model = "within", effect = "twoways")

m_direct_disc_q <- plm(Tobin_Q ~ ESG_SCORE + RSF_Press_Freedom +
  Log_Total_Assets + Leverage + Sales_Growth + Log_GDP_per_capita,
  data = pdata_disc, model = "within", effect = "twoways")

vcov_direct_disc_roa <- vcovHC(m_direct_disc_roa, type = "HC1", cluster = "group")
vcov_direct_disc_q <- vcovHC(m_direct_disc_q, type = "HC1", cluster = "group")

# --- Staples subsample ---
m_direct_stap_roa <- plm(ROA ~ ESG_SCORE + RSF_Press_Freedom +
  Log_Total_Assets + Leverage + Sales_Growth + Log_GDP_per_capita,
  data = pdata_staples, model = "within", effect = "twoways")

m_direct_stap_q <- plm(Tobin_Q ~ ESG_SCORE + RSF_Press_Freedom +
  Log_Total_Assets + Leverage + Sales_Growth + Log_GDP_per_capita,
  data = pdata_staples, model = "within", effect = "twoways")

vcov_direct_stap_roa <- vcovHC(m_direct_stap_roa, type = "HC1", cluster = "group")
vcov_direct_stap_q <- vcovHC(m_direct_stap_q, type = "HC1", cluster = "group")

cat("\n=== DIRECT EFFECTS – DISC subsample (ROA) ===\n")
print(coeftest(m_direct_disc_roa, vcov = vcov_direct_disc_roa))

cat("\n=== DIRECT EFFECTS – DISC subsample (Tobin's Q) ===\n")
print(coeftest(m_direct_disc_q, vcov = vcov_direct_disc_q))

cat("\n=== DIRECT EFFECTS – Staples subsample (ROA) ===\n")
print(coeftest(m_direct_stap_roa, vcov = vcov_direct_stap_roa))

```

```
cat("\n=== DIRECT EFFECTS – Staples subsample (Tobin's Q) ===\n")
print(coeftest(m_direct_stap_q, vcov = vcov_direct_stap_q))
```

Section 8 — ESG x RSF Interaction Models (H2)

```
# CFP =  $\beta_1$ *ESG +  $\beta_2$ *RSF +  $\beta_3$ *(ESG*RSF) + controls + firm FE + year FE
# Estimated separately for DISC and Staples subsamples
# H2: compare  $\beta_3$  across the two subsamples
# =====

# --- DISC subsample ---
m_int_disc_roa <- plm(ROA ~ ESG_SCORE + RSF_Press_Freedom + ESG_x_PF +
  Log_Total_Assets + Leverage + Sales_Growth + Log_GDP_per_capita,
  data = pdata_disc, model = "within", effect = "twoways")

m_int_disc_q <- plm(Tobin_Q ~ ESG_SCORE + RSF_Press_Freedom + ESG_x_PF +
  Log_Total_Assets + Leverage + Sales_Growth + Log_GDP_per_capita,
  data = pdata_disc, model = "within", effect = "twoways")

vcov_int_disc_roa <- vcovHC(m_int_disc_roa, type = "HC1", cluster = "group")
vcov_int_disc_q <- vcovHC(m_int_disc_q, type = "HC1", cluster = "group")

# --- Staples subsample ---
m_int_stap_roa <- plm(ROA ~ ESG_SCORE + RSF_Press_Freedom + ESG_x_PF +
  Log_Total_Assets + Leverage + Sales_Growth + Log_GDP_per_capita,
  data = pdata_staples, model = "within", effect = "twoways")

m_int_stap_q <- plm(Tobin_Q ~ ESG_SCORE + RSF_Press_Freedom + ESG_x_PF +
  Log_Total_Assets + Leverage + Sales_Growth + Log_GDP_per_capita,
  data = pdata_staples, model = "within", effect = "twoways")

vcov_int_stap_roa <- vcovHC(m_int_stap_roa, type = "HC1", cluster = "group")
vcov_int_stap_q <- vcovHC(m_int_stap_q, type = "HC1", cluster = "group")

cat("\n=== ESG x RSF INTERACTION – DISC subsample (ROA) ===\n")
print(coeftest(m_int_disc_roa, vcov = vcov_int_disc_roa))

cat("\n=== ESG x RSF INTERACTION – DISC subsample (Tobin's Q) ===\n")
```

```
print(coeftest(m_int_disc_q, vcov = vcov_int_disc_q))

cat("\n=== ESG x RSF INTERACTION – Staples subsample (ROA) ===\n")
print(coeftest(m_int_stap_roa, vcov = vcov_int_stap_roa))

cat("\n=== ESG x RSF INTERACTION – Staples subsample (Tobin's Q) ===\n")
print(coeftest(m_int_stap_q, vcov = vcov_int_stap_q))
```

Section 9 — Robustness Check

```
# -----
# R1: One-year lagged ESG (reverse causality check)
# Applied to both direct effects and interaction models
# in each subsample
# -----

df_lag <- df_raw %>%
distinct() %>%
filter(!is.na(Sales_Growth)) %>%
filter(Year >= 2016) %>%
group_by(Ticker) %>%
filter(n() >= 3) %>%
ungroup() %>%
arrange(Ticker, Year) %>%
group_by(Ticker) %>%
mutate(
ESG_lag = dplyr::lag(ESG_SCORE, order_by = Year),
ESG_lag_x_PF = ESG_lag * RSF_Press_Freedom
) %>%
ungroup() %>%
filter(!is.na(ESG_lag)) %>%
mutate(
ROA = winsorize(ROA),
Tobin_Q = winsorize(Tobin_Q),
Leverage = winsorize(Leverage),
Sales_Growth = winsorize(Sales_Growth),
Log_Total_Assets = winsorize(Log_Total_Assets)
)
```

```

df_lag_disc <- df_lag %>% filter(DISC == 1)
df_lag_staples <- df_lag %>% filter(DISC == 0)

pdata_lag_disc <- pdata.frame(df_lag_disc, index = c("Ticker", "Year"))
pdata_lag_staples <- pdata.frame(df_lag_staples, index = c("Ticker", "Year"))

# Lagged direct effects – DISC
r1_lag_direct_disc_roa <- plm(ROA ~ ESG_lag + RSF_Press_Freedom +
Log_Total_Assets + Leverage + Sales_Growth + Log_GDP_per_capita,
data = pdata_lag_disc, model = "within", effect = "twoways")
r1_lag_direct_disc_q <- plm(Tobin_Q ~ ESG_lag + RSF_Press_Freedom +
Log_Total_Assets + Leverage + Sales_Growth + Log_GDP_per_capita,
data = pdata_lag_disc, model = "within", effect = "twoways")

# Lagged direct effects – Staples
r1_lag_direct_stap_roa <- plm(ROA ~ ESG_lag + RSF_Press_Freedom +
Log_Total_Assets + Leverage + Sales_Growth + Log_GDP_per_capita,
data = pdata_lag_staples, model = "within", effect = "twoways")
r1_lag_direct_stap_q <- plm(Tobin_Q ~ ESG_lag + RSF_Press_Freedom +
Log_Total_Assets + Leverage + Sales_Growth + Log_GDP_per_capita,
data = pdata_lag_staples, model = "within", effect = "twoways")

# Lagged interaction – DISC
r1_lag_int_disc_roa <- plm(ROA ~ ESG_lag + RSF_Press_Freedom + ESG_lag_x_PF +
Log_Total_Assets + Leverage + Sales_Growth + Log_GDP_per_capita,
data = pdata_lag_disc, model = "within", effect = "twoways")
r1_lag_int_disc_q <- plm(Tobin_Q ~ ESG_lag + RSF_Press_Freedom + ESG_lag_x_PF +
Log_Total_Assets + Leverage + Sales_Growth + Log_GDP_per_capita,
data = pdata_lag_disc, model = "within", effect = "twoways")

# Lagged interaction – Staples
r1_lag_int_stap_roa <- plm(ROA ~ ESG_lag + RSF_Press_Freedom + ESG_lag_x_PF +
Log_Total_Assets + Leverage + Sales_Growth + Log_GDP_per_capita,
data = pdata_lag_staples, model = "within", effect = "twoways")
r1_lag_int_stap_q <- plm(Tobin_Q ~ ESG_lag + RSF_Press_Freedom + ESG_lag_x_PF +
Log_Total_Assets + Leverage + Sales_Growth + Log_GDP_per_capita,
data = pdata_lag_staples, model = "within", effect = "twoways")

```

```

cat("\n=== ROBUSTNESS: LAGGED ESG – Direct effects, DISC (ROA) ===\n")
print(coeftest(r1_lag_direct_disc_roa,
vcov = vcovHC(r1_lag_direct_disc_roa, type = "HC1", cluster = "group")))

cat("\n=== ROBUSTNESS: LAGGED ESG – Direct effects, DISC (Tobin's Q) ===\n")
print(coeftest(r1_lag_direct_disc_q,
vcov = vcovHC(r1_lag_direct_disc_q, type = "HC1", cluster = "group")))

cat("\n=== ROBUSTNESS: LAGGED ESG – Direct effects, Staples (ROA) ===\n")
print(coeftest(r1_lag_direct_stap_roa,
vcov = vcovHC(r1_lag_direct_stap_roa, type = "HC1", cluster = "group")))

cat("\n=== ROBUSTNESS: LAGGED ESG – Direct effects, Staples (Tobin's Q) ===\n")
print(coeftest(r1_lag_direct_stap_q,
vcov = vcovHC(r1_lag_direct_stap_q, type = "HC1", cluster = "group")))

cat("\n=== ROBUSTNESS: LAGGED ESG – Interaction, DISC (ROA) ===\n")
print(coeftest(r1_lag_int_disc_roa,
vcov = vcovHC(r1_lag_int_disc_roa, type = "HC1", cluster = "group")))

cat("\n=== ROBUSTNESS: LAGGED ESG – Interaction, DISC (Tobin's Q) ===\n")
print(coeftest(r1_lag_int_disc_q,
vcov = vcovHC(r1_lag_int_disc_q, type = "HC1", cluster = "group")))

cat("\n=== ROBUSTNESS: LAGGED ESG – Interaction, Staples (ROA) ===\n")
print(coeftest(r1_lag_int_stap_roa,
vcov = vcovHC(r1_lag_int_stap_roa, type = "HC1", cluster = "group")))

cat("\n=== ROBUSTNESS: LAGGED ESG – Interaction, Staples (Tobin's Q) ===\n")
print(coeftest(r1_lag_int_stap_q,
vcov = vcovHC(r1_lag_int_stap_q, type = "HC1", cluster = "group")))

```

Section 10 — Export All Results

```

sink("~/Desktop/regression_results_revised.txt")

```

```

cat("=== HAUSMAN TEST (ROA) ===\n")
print(phtest(m_hausman_fe_roa, m_hausman_re_roa))

cat("\n=== HAUSMAN TEST (TOBIN'S Q) ===\n")
print(phtest(m_hausman_fe_q, m_hausman_re_q))

cat("\n=== DIRECT EFFECTS – DISC subsample (ROA) ===\n")
print(coeftest(m_direct_disc_roa, vcov = vcov_direct_disc_roa))

cat("\n=== DIRECT EFFECTS – DISC subsample (Tobin's Q) ===\n")
print(coeftest(m_direct_disc_q, vcov = vcov_direct_disc_q))

cat("\n=== DIRECT EFFECTS – Staples subsample (ROA) ===\n")
print(coeftest(m_direct_stap_roa, vcov = vcov_direct_stap_roa))

cat("\n=== DIRECT EFFECTS – Staples subsample (Tobin's Q) ===\n")
print(coeftest(m_direct_stap_q, vcov = vcov_direct_stap_q))

cat("\n=== ESG x RSF INTERACTION – DISC subsample (ROA) ===\n")
print(coeftest(m_int_disc_roa, vcov = vcov_int_disc_roa))

cat("\n=== ESG x RSF INTERACTION – DISC subsample (Tobin's Q) ===\n")
print(coeftest(m_int_disc_q, vcov = vcov_int_disc_q))

cat("\n=== ESG x RSF INTERACTION – Staples subsample (ROA) ===\n")
print(coeftest(m_int_stap_roa, vcov = vcov_int_stap_roa))

cat("\n=== ESG x RSF INTERACTION – Staples subsample (Tobin's Q) ===\n")
print(coeftest(m_int_stap_q, vcov = vcov_int_stap_q))

cat("\n=== ROBUSTNESS: LAGGED ESG – Direct effects, DISC (ROA) ===\n")
print(coeftest(r1_lag_direct_disc_roa,
vcov = vcovHC(r1_lag_direct_disc_roa, type = "HC1", cluster = "group")))

cat("\n=== ROBUSTNESS: LAGGED ESG – Direct effects, DISC (Tobin's Q) ===\n")
print(coeftest(r1_lag_direct_disc_q,
vcov = vcovHC(r1_lag_direct_disc_q, type = "HC1", cluster = "group")))

```

```

cat("\n=== ROBUSTNESS: LAGGED ESG – Direct effects, Staples (ROA) ===\n")
print(coeftest(r1_lag_direct_stap_roa,
vcov = vcovHC(r1_lag_direct_stap_roa, type = "HC1", cluster = "group")))

cat("\n=== ROBUSTNESS: LAGGED ESG – Direct effects, Staples (Tobin's Q) ===\n")
print(coeftest(r1_lag_direct_stap_q,
vcov = vcovHC(r1_lag_direct_stap_q, type = "HC1", cluster = "group")))

cat("\n=== ROBUSTNESS: LAGGED ESG – Interaction, DISC (ROA) ===\n")
print(coeftest(r1_lag_int_disc_roa,
vcov = vcovHC(r1_lag_int_disc_roa, type = "HC1", cluster = "group")))

cat("\n=== ROBUSTNESS: LAGGED ESG – Interaction, DISC (Tobin's Q) ===\n")
print(coeftest(r1_lag_int_disc_q,
vcov = vcovHC(r1_lag_int_disc_q, type = "HC1", cluster = "group")))

cat("\n=== ROBUSTNESS: LAGGED ESG – Interaction, Staples (ROA) ===\n")
print(coeftest(r1_lag_int_stap_roa,
vcov = vcovHC(r1_lag_int_stap_roa, type = "HC1", cluster = "group")))

cat("\n=== ROBUSTNESS: LAGGED ESG – Interaction, Staples (Tobin's Q) ===\n")
print(coeftest(r1_lag_int_stap_q,
vcov = vcovHC(r1_lag_int_stap_q, type = "HC1", cluster = "group")))
vcov = vcovHC(r2_ind_stap_q, type = "HC1", cluster = "group")))

sink()

cat("\nDone. Results exported to ~/Desktop/regression_results_revised.txt\n")

```

7.2 Appendix B: Raw R output

This annex presents the complete raw output from the R estimation session, including Hausman test statistics, direct effects model coefficients, interaction model coefficients, and lagged ESG robustness checks. Results are reproduced directly from the RStudio console output.

=== HAUSMAN TEST (ROA) ==

Hausman Test

```
data: ROA ~ ESG_SCORE + RSF_Press_Freedom + Log_Total_Assets + Leverage + ...
chisq = 58.122, df = 6, p-value = 1.083e-10
alternative hypothesis: one model is inconsistent
```

=== HAUSMAN TEST (TOBIN'S Q) ===

Hausman Test

```
data: Tobin_Q ~ ESG_SCORE + RSF_Press_Freedom + Log_Total_Assets + ...
chisq = 58.148, df = 6, p-value = 1.069e-10
alternative hypothesis: one model is inconsistent
```

=== DIRECT EFFECTS — DISC subsample (ROA) ===

t test of coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
ESG_SCORE	0.2388977	0.1594217	1.4985	0.13409	
RSF_Press_Freedom	-0.0015439	0.0238081	-0.0648	0.94830	
Log_Total_Assets	1.3186604	0.5577064	2.3644	0.01811	*
Leverage	-16.8576294	2.2516721	-7.4867	8.999e-14	***
Sales_Growth	0.0501935	0.0050122	10.0142	< 2.2e-16	***
Log_GDP_per_capita	1.2655557	1.1662796	1.0851	0.27795	

=== DIRECT EFFECTS — DISC subsample (Tobin's Q) ===

t test of coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
ESG_SCORE	-0.0628358	0.0316786	-1.9835	0.0473897	*
RSF_Press_Freedom	-0.0049873	0.0052219	-0.9551	0.3396174	
Log_Total_Assets	-0.4170510	0.1797619	-2.3200	0.0204002	*
Leverage	-1.5421185	0.4321863	-3.5682	0.0003646	***
Sales_Growth	0.0057093	0.0012308	4.6386	3.644e-06	***
Log_GDP_per_capita	0.2768945	0.2814842	0.9837	0.3253375	

=== DIRECT EFFECTS — Staples subsample (ROA) ===

t test of coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
ESG_SCORE	0.0530220	0.2149707	0.2466	0.80520	
RSF_Press_Freedom	-0.0459712	0.0240635	-1.9104	0.05620	.
Log_Total_Assets	-0.0459393	0.7758733	-0.0592	0.95279	
Leverage	-17.1795431	2.5902538	-6.6324	4.077e-11	***
Sales_Growth	0.0436796	0.0075807	5.7619	9.394e-09	***
Log_GDP_per_capita	3.4765482	1.7037530	2.0405	0.04141	*

=== DIRECT EFFECTS — Staples subsample (Tobin's Q) ===

t test of coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
ESG_SCORE	-0.1043939	0.0581850	-1.7942	0.0729132	.
RSF_Press_Freedom	-0.0077442	0.0076429	-1.0133	0.3110429	
Log_Total_Assets	-0.3463224	0.1651378	-2.0972	0.0360839	*
Leverage	-1.4295944	0.3949681	-3.6195	0.0003013	***
Sales_Growth	0.0061287	0.0018696	3.2781	0.0010603	**
Log_GDP_per_capita	1.1611394	0.3516924	3.3016	0.0009757	***

=== ESG x RSF INTERACTION — DISC subsample (ROA) ===

t test of coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
ESG_SCORE	-0.4391626	0.2733990	-1.6063	0.10830	
RSF_Press_Freedom	-0.0342193	0.0254890	-1.3425	0.17952	
ESG_x_PF	0.0115346	0.0044437	2.5957	0.00948	**
Log_Total_Assets	1.3644255	0.5591903	2.4400	0.01474	*
Leverage	-16.8277253	2.2329330	-7.5362	6.208e-14	***
Sales_Growth	0.0500923	0.0049887	10.0411	< 2.2e-16	***
Log_GDP_per_capita	1.4651669	1.1737623	1.2483	0.21202	

=== ESG x RSF INTERACTION — DISC subsample (Tobin's Q) ===

t test of coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
ESG_SCORE	-0.2388455	0.0925406	-2.5810	0.0098946	**
RSF_Press_Freedom	-0.0134691	0.0075848	-1.7758	0.0758584	.
ESG_x_PF	0.0029941	0.0014390	2.0808	0.0375323	*
Log_Total_Assets	-0.4051714	0.1760253	-2.3018	0.0214093	*
Leverage	-1.5343560	0.4277327	-3.5872	0.0003391	***
Sales_Growth	0.0056830	0.0012314	4.6151	4.077e-06	***
Log_GDP_per_capita	0.3287092	0.2809644	1.1699	0.2421125	

=== ESG x RSF INTERACTION — Staples subsample (ROA) ===

t test of coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
ESG_SCORE	0.5269424	0.4434303	1.1883	0.2348	
RSF_Press_Freedom	-0.0221965	0.0363958	-0.6099	0.5420	
ESG_x_PF	-0.0085293	0.0077321	-1.1031	0.2701	
Log_Total_Assets	-0.1475132	0.7896409	-0.1868	0.8518	
Leverage	-17.1203241	2.5915707	-6.6062	4.853e-11	***
Sales_Growth	0.0443683	0.0077128	5.7525	9.925e-09	***
Log_GDP_per_capita	3.2691662	1.7222792	1.8982	0.0578	.

=== ESG x RSF INTERACTION — Staples subsample (Tobin's Q) ===

t test of coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
ESG_SCORE	-0.1446166	0.1610767	-0.8978	0.3693767	
RSF_Press_Freedom	-0.0097620	0.0107782	-0.9057	0.3651772	
ESG_x_PF	0.0007239	0.0022882	0.3164	0.7517566	
Log_Total_Assets	-0.3377016	0.1711824	-1.9728	0.0486391	*
Leverage	-1.4346204	0.3959152	-3.6236	0.0002967	***
Sales_Growth	0.0060702	0.0018272	3.3222	0.0009068	***
Log_GDP_per_capita	1.1787404	0.3379931	3.4875	0.0004965	***

=== ROBUSTNESS: LAGGED ESG — Direct effects, DISC (ROA) ===

t test of coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
ESG_lag	1.9323e-02	1.7825e-01	0.1084	0.91368	
RSF_Press_Freedom	-5.1406e-04	2.5812e-02	-0.0199	0.98411	
Log_Total_Assets	1.4592e+00	5.9929e-01	2.4348	0.01496	*
Leverage	-1.8770e+01	2.0218e+00	-9.2838	< 2e-16	***
Sales_Growth	5.8731e-02	5.1026e-03	11.5100	< 2e-16	***
Log_GDP_per_capita	1.7963e+00	1.2120e+00	1.4820	0.13844	

=== ROBUSTNESS: LAGGED ESG — Direct effects, DISC (Tobin's Q) ===

t test of coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
ESG_lag	-0.0985490	0.0380361	-2.5909	0.0096225	**
RSF_Press_Freedom	-0.0011417	0.0049028	-0.2329	0.8158810	
Log_Total_Assets	-0.3329885	0.1259163	-2.6445	0.0082275	**
Leverage	-1.5487812	0.4206596	-3.6818	0.0002361	***
Sales_Growth	0.0064679	0.0015816	4.0896	4.447e-05	***
Log_GDP_per_capita	0.3222461	0.2848088	1.1314	0.2579662	

=== ROBUSTNESS: LAGGED ESG — Direct effects, Staples (ROA) ===

t test of coefficients:

	Estimate	Std. Error	t value	Pr(> t)
ESG_lag	-0.0514881	0.2360064	-0.2182	0.82732
RSF_Press_Freedom	-0.0494653	0.0225711	-2.1915	0.02853 *
Log_Total_Assets	-0.1296494	0.8204366	-0.1580	0.87445
Leverage	-15.9474327	2.7306167	-5.8402	6.090e-09 ***
Sales_Growth	0.0557018	0.0078285	7.1153	1.561e-12 ***
Log_GDP_per_capita	3.2223931	1.7899268	1.8003	0.07197 .

=== ROBUSTNESS: LAGGED ESG — Direct effects, Staples (Tobin's Q) ===

t test of coefficients:

	Estimate	Std. Error	t value	Pr(> t)
ESG_lag	-0.2246632	0.0757760	-2.9648	0.003065 **
RSF_Press_Freedom	-0.0129078	0.0083843	-1.5395	0.123841
Log_Total_Assets	-0.4422111	0.1728965	-2.5577	0.010613 *
Leverage	-1.1970757	0.4305570	-2.7803	0.005483 **
Sales_Growth	0.0075621	0.0026588	2.8442	0.004499 **
Log_GDP_per_capita	1.0654410	0.3501620	3.0427	0.002376 **

=== ROBUSTNESS: LAGGED ESG — Interaction, DISC (ROA) ===

t test of coefficients:

	Estimate	Std. Error	t value	Pr(> t)
ESG_lag	-0.646123	0.372250	-1.7357	0.08273 .
RSF_Press_Freedom	-0.031287	0.028752	-1.0882	0.27661
ESG_lag_x_PF	0.011022	0.005514	1.9989	0.04572 *
Log_Total_Assets	1.485969	0.594978	2.4975	0.01257 *
Leverage	-18.731784	2.001813	-9.3574	< 2e-16 ***
Sales_Growth	0.058706	0.005080	11.5563	< 2e-16 ***
Log_GDP_per_capita	1.891263	1.214246	1.5576	0.11945

=== ROBUSTNESS: LAGGED ESG — Interaction, DISC (Tobin's Q) ===

t test of coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
ESG_lag	-0.2898656	0.1136004	-2.5516	0.0107762	*
RSF_Press_Freedom	-0.0099890	0.0076544	-1.3050	0.1920045	
ESG_lag_x_PF	0.0031688	0.0016292	1.9450	0.0518806	.
Log_Total_Assets	-0.3252790	0.1272958	-2.5553	0.0106634	*
Leverage	-1.5379009	0.4184830	-3.6749	0.0002425	***
Sales_Growth	0.0064608	0.0015717	4.1108	4.059e-05	***
Log_GDP_per_capita	0.3495465	0.2847524	1.2275	0.2197234	

=== ROBUSTNESS: LAGGED ESG — Interaction, Staples (ROA) ===

t test of coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
ESG_lag	0.2885742	0.5237154	0.5510	0.58169	
RSF_Press_Freedom	-0.0331389	0.0355957	-0.9310	0.35198	
ESG_lag_x_PF	-0.0059700	0.0083603	-0.7141	0.47526	
Log_Total_Assets	-0.1989381	0.8295713	-0.2398	0.81050	
Leverage	-15.9055735	2.7279172	-5.8307	6.444e-09	***
Sales_Growth	0.0564131	0.0078967	7.1439	1.275e-12	***
Log_GDP_per_capita	3.1185716	1.8078407	1.7250	0.08468	.

=== ROBUSTNESS: LAGGED ESG — Interaction, Staples (Tobin's Q) ===

t test of coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
ESG_lag	-0.5795446	0.1832659	-3.1623	0.0015892	**
RSF_Press_Freedom	-0.0299456	0.0122699	-2.4406	0.0147519	*
ESG_lag_x_PF	0.0062301	0.0028035	2.2223	0.0263768	*
Log_Total_Assets	-0.3699030	0.1856656	-1.9923	0.0464762	*
Leverage	-1.2407590	0.4241347	-2.9254	0.0034799	**
Sales_Growth	0.0068199	0.0025552	2.6690	0.0076701	**
Log_GDP_per_capita	1.1737869	0.3439533	3.4126	0.0006565	***

Abstract:

This thesis examines whether consumer market type (Consumer discretionary vs. Consumer staples) moderates the relationship between ESG performance and corporate financial performance (CFP), and whether this moderation is amplified by country-level press freedom. Two hypotheses are tested on a panel of 1,006 publicly listed firms across 45 countries over the period 2015–2024, using two-way fixed-effects panel OLS regressions with ROA and Tobin's Q as dependent variables, estimated separately for each market-type subsample.

H1, that the ESG–CFP association is stronger in discretionary than in staples markets, is not supported by the direct effects estimates. H2, that press freedom amplifies the ESG–CFP relationship more strongly in discretionary than in staples markets, is supported. The $ESG \times PF$ interaction coefficient is positive and significant in the Consumer discretionary subsample for both ROA ($\beta = 0.012$, $p = 0.009$) and Tobin's Q ($\beta = 0.003$, $p = 0.038$), and insignificant in the Consumer staples subsample. This finding holds under a one-year lagged ESG specification for ROA. The results suggest that press freedom is a necessary condition for ESG investment to generate financial returns in consumer-facing discretionary markets, operating through the visibility and consumer power channels identified in the theoretical framework.

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