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The Impact of ESG Reputational Risks on Financing Costs: The Case of Korean Wholesale and Retail Trade Firms

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Abstract

Purpose: This study examines whether ESG reputational risks increase firms' financial frictions and weaken growth prospects, with a focus on Korean wholesale and retail trade firms that are particularly exposed to public perception due to their proximity to final consumers. **Research design, data and methodology:** We measure ESG reputational risks using two media-based indices: the RepRisk Index (2012–2023) and Who's Good ESG Incident Scores (2019–2023). We link these measures to financial constraint indices, the implied cost of equity, and Tobin's Q for KOSPI-listed wholesale and retail firms, and test the effect of ESG risk using quarterly data in a two-way fixed effects framework with controls for firm financial characteristics. **Results:** ESG reputational risks significantly increase financial constraints, raise the cost of equity, and reduce growth opportunities for Korean wholesale and retail firms. These effects, however, are attenuated among the largest retail firms in the KOSPI200, possibly due to their size, profitability, credit ratings, and chaebol affiliations. Governance-related risks remain salient even in this subsample. **Conclusions:** The findings highlight the financial consequences of ESG reputational risks for consumer-facing firms and suggest that ESG-related reputation management should remain central to corporate strategy.

Keywords: ESG Risk, Corporate Reputation, Financing Cost, Corporate Finance, Sustainability

JEL Classification Code: G30, G32, M14

1. Introduction

In recent years, environmental, social, and governance (ESG) considerations have moved to the forefront of corporate strategy and financial decision-making. While much of the early research on corporate social responsibility (CSR) and ESG practices emphasized their potential to enhance firm value and strengthen stakeholder relationships, a growing body of work highlights the risks associated with ESG misconduct (e.g., Fafaliou et al., 2022; Li & Wu, 2020; Nicolas et al., 2024). Just as strong ESG performance can improve firms' financial performance, environmental violations, social controversies, and governance failures can undermine corporate reputation, heighten investor concerns, and increase risk exposure (Feldman et al., 1997; Starks, 2009; Galletta et al., 2023).

Until recently, however, relatively few studies have treated ESG not as an optional or peripheral element of

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corporate activity, but as a core operational risk that requires active management. This paucity of empirical research partly reflects limitations in effective measurement of ESG risks. Conventional ESG ratings often rely on firms' self-reported disclosures on positive achievements, or long-term aspirational goals, which may fail to capture actual incidents of ESG misconduct (Fafaliou et al., 2022; Li & Wu, 2020).

Advances in data availability and text analysis techniques have spurred the development of ESG risk indices derived from large-scale media coverage of negative ESG incidents. For instance, agencies such as RepRisk measure firms' ESG-related risk by analyzing negative ESG news reports and assessing the frequency of coverage and the severity of the underlying incidents. Studies using such measures in developed markets show that ESG risks increase firms' overall risk exposure, thereby intensifying financial frictions and, in some cases, weakening growth prospects (Kölbel, Busch, & Jancso, 2017; Becchetti et al., 2023; Fafaliou et al., 2022). Yet, research applying such measures to Korean firms remains limited.

Media coverage of ESG misconduct generates negative reputational perceptions, particularly salient for consumer-facing firms. In industries such as wholesale and retail trade, firms' close proximity to final consumers magnifies the reputational consequences of ESG failures and directly affects cash flows (Li & Wu, 2020). Prior studies (e.g., Li & Wu, 2020) show that firms located closer to end consumers in the value chain—such as downstream manufacturers and retailers—actively seek to mitigate negative ESG incidents, whereas such efforts are much less evident among upstream manufacturers. Building on these insights, it is reasonable to expect that ESG-related reputation is directly tied to the operations and financial performance of wholesale and retail firms. Despite this, few studies explicitly examine how ESG reputational risks shape the financing and growth dynamics of consumer-facing firms.

This study addresses these gaps by analyzing the impact of ESG-related reputational risks on the financial frictions and growth opportunities of Korean wholesale and retail firms. We measure reputational risks using two indices based on negative media coverage: the RepRisk Index (2012–2023) and Who's Good ESG Incident Scores (2019–2023). Compared with traditional ESG ratings, media-based measures are less susceptible to greenwashing and better capture public perceptions of ESG practices. We combine these measures with standard indices of financial constraints (KZ, SA, and WW), Gordon and Gordon's (1997) implied cost of equity, and Tobin's Q to analyze whether ESG reputational risks limit external financing and restrict growth prospects.

Our analysis shows that ESG reputational risks heighten financial frictions and weaken growth prospects among Korean retailers. At the same time, the effects are less pronounced for larger firms, underscoring the importance of governance-related concerns as a persistent source of reputational vulnerability.

By documenting how ESG reputational risks constrain financial flexibility and weaken growth prospects, this study makes three contributions. First, it extends the ESG–corporate finance literature on Korean firms by focusing on the negative consequences of ESG mismanagement. Second, it highlights the particular vulnerability of consumer-facing firms in Korea, showing that retailers' financing and growth prospects are sensitive to ESG controversies. Finally, it underscores the persistent importance of governance-related risks for large wholesale and retail trade firms, suggesting that ESG-related reputation management should remain central to corporate strategy.

2. Literature Review and Hypothesis Development

A large body of research examines the relationship between corporate social responsibility (CSR) activities and firms' financial performance and market value. Recent studies increasingly suggest that firms' engagement in CSR and ESG initiatives can enhance financial performance and positively influence firm value. Margolis et al. (2009), Wang et al. (2016), and Vishwanathan et al. (2020) conduct meta-analyses on prior studies on sustainability and conclude that ESG initiatives generally exert a positive effect on financial outcomes.

Another stream of literature emphasizes the financial consequences of corporate social irresponsibility (CSI), highlighting that investors perceive socially irresponsible firms as riskier due to potential conflicts with stakeholders, litigation risks, and regulatory penalties that may translate into significant corporate losses (Feldman et al., 1997; Starks, 2009; Galletta et al., 2023). Several studies examine how ESG concerns affect the cost of funding. In particular, Goss and Roberts (2011) and Chava (2014) show that firms with such concerns face higher borrowing costs, specifically through wider loan spreads.

Li and Wu (2020), Tsang et al. (2024), Berg et al. (2022), and Li et al. (2024) point out the limitations of conventional ESG ratings that rely on firms' self-reported disclosures. In line with this critique, more recent studies increasingly employ alternative data sources, particularly media coverage of ESG misconduct, as more objective measures of reputational risk (e.g., Nicolas et al., 2024). For example, Kölbel et al. (2017) show that negative media attention heightens firms' financial risks. Fafaliou et al. (2022) find that firms become more financially constrained as their media-based ESG reputational risks increase. Similarly, Becchetti and Manfredonia (2022) and Becchetti et al. (2023)

show that media coverage of ESG misconduct is positively associated with bank loan spreads and equity capital costs.

The theoretical mechanisms connecting ESG reputational risks to financial outcomes can be understood through stakeholder and agency perspectives. Stakeholder theory emphasizes that firms exist within a web of relationships in which credibility and trust are critical resources (Freeman, 1984; Donaldson & Preston, 1995). When firms face reputational setbacks due to ESG controversies, these relational assets are eroded, heightening perceived risk among creditors, investors, and customers. As sustainable investing has gained prominence globally (Dyck et al., 2019; Hartzmark & Sussman, 2019), stakeholders are increasingly unwilling to allocate capital to firms whose practices conflict with social and environmental expectations.

Agency theory provides an additional lens. Because managers' true motives regarding ESG initiatives are unobservable, markets often interpret reputational risks as signals of weak governance or managerial opportunism (Jensen & Meckling, 1976; Shleifer & Vishny, 1997). This perception heightens agency costs—through increased monitoring, bonding costs, or residual losses—which discourages outside investors from committing capital and raises the cost of external finance.

Accordingly, ESG activities mitigate such agency problems by aligning the interests of managers with shareholders and other stakeholders, thereby supporting financing and growth. Conversely, ESG controversies reinforce suspicions of value-decreasing managerial behavior, amplifying financing constraints and reducing growth opportunities. In this sense, ESG reputational risks serve as a negative signal to capital markets, leading stakeholders—including shareholders, institutional investors, and venture capitalists—to become reluctant to provide financing, exacerbating financial constraints and raising the cost of external capital (Fafaliou et al., 2022). Therefore, we hypothesize:

H1: For wholesale and retail trade firms, higher ESG reputational risk is associated with more limited access to external financing.

ESG reputational risks can also directly affect firms' ability to raise equity capital and shape their growth prospects (Becchetti et al., 2023). Investors may avoid firms perceived as risky, increasing the costs of equity financing. This mechanism is consistent with agency theory, whereby conflicts of interest between managers and shareholders create additional agency costs (e.g., bonding costs, residual losses) that intensify under reputational concerns (Fafaliou et al., 2022).

Corporate reputation is shaped by public perception, and news of ESG mismanagement is largely consumed by final consumers. As such, firms located closer to final consumers—such as retailers—stand to benefit more directly from a positive ESG reputation (Khanna & Damon, 1999; Lev et al., 2010; Sen & Bhattacharya, 2001). Li and Wu (2020) also find that consumer-facing firms manage reputational risks more proactively. Building on this, we expect ESG reputational risks to increase uncertainty around future cash flows for retailers and propose the following hypothesis:

H2: For wholesale and retail trade firms, ESG reputational risk is positively associated with the cost of equity capital.

Finally, constrained financing is likely to hinder firms' growth dynamics (Almeida & Campello, 2007). A large body of literature finds that ESG-oriented companies enjoy higher market valuations, improved access to capital, and stronger long-term growth potential (Margolis et al., 2009; Wang et al., 2008; Servaes & Tamayo, 2013; Ioannou & Serafeim, 2015; Godfrey et al., 2009; Donaldson & Preston, 1995). Accordingly, we posit the following hypothesis:

H3: For wholesale and retail trade firms, higher ESG reputational risk is associated with reduced growth opportunities.

3. Research Design

3.1. Sample Construction

3.1.1. ESG Reputational Risks

This study aims to estimate the impact of firms' ESG-related reputational risk on external financing. While the positive outcomes of ESG management are often difficult to measure and therefore tend to manifest indirectly, a risk-based approach focusing on realized ESG incidents is easier to quantify and generally attracts greater public attention. Accordingly, this approach provides a suitable basis for analyzing the effects and consequences of ESG management.

Our primary measure of firms' ESG-related reputational risk is the RepRisk Index (RRI), provided by RepRisk. RepRisk has tracked corporate ESG reputational risks worldwide since 2007, relying on negative ESG incidents (Li & Wu, 2020). Its data are generated through a five-step process: (1) screening, (2) identification and filtering, (3) analysis, (4) quality assurance, and (5) quantification. Each day, RepRisk monitors over 80,000 media sources for negative ESG issues. Once a negative incident is identified, in-house analysts conduct additional filtering and verification to ensure that the incident is indeed ESG-related.

Although the usefulness of RepRisk data has been well documented in prior studies (see, for example, Li & Wu, 2020; Becchetti et al., 2023), the RRI is provided only as an

aggregate index of overall ESG risk. It does not report scores separately for the environmental, social, or governance dimensions. Yet, since ESG is a broad concept encompassing diverse areas and topics, the materiality of each dimension may vary across industries and firms. Such variation is particularly relevant to our research question, as different ESG dimensions may affect external financing in distinct ways.

For this reason, we consider a secondary measure of ESG reputational risks that provides dimension-specific indicators. This measure is the ESG Incident Analysis (ESG IA) database provided by Who's Good, which offers ESG risk ratings for Korean firms. The ESG IA monitors corporate news articles published daily by approximately 90 domestic news outlets, identifies negative ESG incidents, and computes firm-specific ESG incident scores (IS). These scores capture risk levels across subcategories of environmental, social, and governance issues, following international standards such as the UN Global Compact, ISO 26000, and the UN Principles for Responsible Investment. The scoring methodology accounts for both the frequency and severity of ESG-related incidents reported in the media.

However, our ESG Incident Score sample was procured with a limited scope, covering the 2019-2023 period. As a result, it is used for supplementary analysis only. In addition, since the RRI does not report separate indices by ESG dimension, the two measures cannot be considered direct substitutes. Instead, ESG IA complements the RRI by offering dimension-specific granularity, which is valuable for identifying whether particular dimensions drive the overall effect of ESG risks on financing. Nonetheless, both measures are based on media coverage of negative ESG incidents, and in practice, the IS and RRI yield broadly similar results when applied to the same firms and periods. Comparative results between the two measures are reported in the Appendix.

Taken together, we use RRI as our primary measure because it provides long time coverage (from 2007 onward), global recognition, and widespread use in prior literature, making it well suited for our main analysis. ESG IA, by contrast, is employed for supplementary analysis to shed light on dimension-specific effects within the Korean context.

Because financial statement data for Korean firms are incomplete for several years prior to 2011 due to changes in accounting standards, our sample period begins later. Finally, we collect daily RRI (IS) data for KOSPI-listed firms in the wholesale and retail trade industries from 2012 to 2023 (2019 to 2023, respectively). We then compute quarterly averages for use in our analysis. The RRI ranges from 0 to 100 in increments of 1, whereas the IS ranges from 0 to 5 in increments of 0.1. In both measures, higher scores indicate higher ESG risk. Over the overlapping sample period (2019–2023), the correlation coefficient between the two indices is 0.56.

3.1.2. Firm Characteristics and Financing Costs

We first test whether wholesale and retail firms face greater difficulty raising external funds when their ESG-related reputational risks worsen. To this end, we follow Schauer et al. (2019) and Fafaliou et al. (2022) and employ three widely used firm-level financial constraint indices: the KZ index proposed by Kaplan and Zingales (1997), the SA index proposed by Hadlock and Pierce (2010), and the WW index proposed by Whited and Wu (2006). In all three measures, higher values indicate that a firm is more financially constrained. These indices capture indirect evidence of financing frictions, in the sense that reputational risks may restrict firms' access to capital markets even if direct financing costs are not immediately observable.

We then examine whether ESG risk also translates into a direct increase in financing costs by calculating the implied cost of equity using Gordon and Gordon (1997) model. The Gordon model defines a firm's cost of equity capital as the rate of return that makes the current share price equal to the discounted value of expected future earnings streams. A higher implied cost of equity indicates more expensive financing. We further include Tobin's Q (Tobin, 1969) as a proxy for firms' growth opportunities, since higher values of Tobin's Q reflect the market's expectations of future growth and profitability. The specific computation of these measures is provided in the next subsection.

We control for a set of firm fundamentals, following Fafaliou et al. (2022), Becchetti et al. (2023), and Bebchuk et al. (2009), to account for firm characteristics that may independently affect financing costs or constraints. The control variables include firm size (proxied by total assets), total debt, sales, cash flow (measured as operating income before depreciation, scaled by total assets), return on equity, R&D expenditures, advertising expenditures, and firm age. All variables, except for ratio measures, are transformed into natural logarithms.

Data on firms' industry classification codes (Korean Standard Industrial Classification, KSIC) and stock prices are obtained from FnGuide. Our sample consists of KOSPI-listed firms assigned to KSIC code 46 (wholesale trade) and code 47 (retail trade). This focus is consistent with the idea that consumer-facing firms are particularly sensitive to reputational risks. Accounting variables used for computing financing cost measures and control variables are available at quarterly frequency from Compustat Global. Earnings forecasts necessary for calculating the implied cost of equity are obtained from I/B/E/S. Summary statistics for ESG reputational risk indices and firm characteristics are reported in Table 1.

Table 1: Descriptive Statistics

Statistic	N	Mean	Median	Stdev	Min	Max
RRI	2,016	8.15	0	10.95	0	62.41
KZ	2,666	0.59	0.58	0.66	-1.18	3.31
SA	2,666	-3.59	-3.60	1.17	-6.09	-0.33
WW	2,666	-0.78	-0.77	0.11	-1.04	-0.50
Tobin's Q	2,650	1.12	0.925	0.70	0.34	9.98
CoE	3,070	0.102	0.095	0.057	0	0.358
Size	2,666	13.59	13.57	1.74	9.70	18.05
Market Cap	2,650	12.64	12.64	1.64	8.94	17.20
Total Debt	2,666	11.57	11.90	3.12	0	16.67
Sales	2,666	12.03	11.80	2.04	6.07	16.23
Cash Flow	2,666	0.012	0.012	0.020	-0.292	0.127
ROE	2,647	-0.002	-0.009	0.332	-8.246	11.270
Beta	2,631	0.564	0.542	0.543	-3.409	5.669
Bankruptcy	2,645	-1.525	-1.407	1.149	-5.561	4.578
R&D	2,666	6.06	0	6.86	0	19.54
Advertising	2,666	12.49	14.47	6.01	0	19.86
Age	2,666	41.28	45.75	20.62	0.41	105.21
ESG IS	300	1.53	1.39	1.27	0	4.74
E IS	300	0.17	0	0.46	0	2.16
S IS	300	1.43	1.09	1.27	0	3.46
G IS	300	0.86	0.63	0.99	0	4.38

3.2. Empirical Methods

To examine whether ESG-related reputational risks impair firms' ability to raise external financing and, in turn, affect their growth prospects, we estimate the following model:

$$y_{i,t+1} = \alpha + \beta x_{i,t} + \gamma' Financial_{i,t} + \epsilon_{i,t}, \quad (1)$$

where $y_{i,t}$ denotes measures of firm i's financial constraints, cost of equity capital, or growth opportunities; $x_{i,t}$ represents the firm's ESG reputational risk; and $Financial_{i,t}$ is a vector of financial characteristics that varies depending on the specification.

Specifically, when testing for financial constraints, $Financial_{i,t}$ includes market capitalization, sales, sales growth, R&D expenditures, advertising expenses, and firm age. When testing for growth opportunities, we additionally include cash flow and return on equity (ROE).

When the dependent variable is cost of equity, $Financial_{i,t}$ includes total assets (size), total debt, cash flow, and ROE, while also controlling for firm risk using market beta and the financial distress score of Zmijewski (1984). The market beta is estimated at the end of each quarter using one year of daily stock returns. Higher values of these indices indicate tighter financial constraints.

3.2.1 Financial Constraint Indices

We first test whether higher ESG reputational risk is associated with tighter financial constraints. To do so, we calculate three widely used financial constraint indices and use them as dependent variables in model (1).

[1] Kaplan and Zingales (1997) Index

We employ the modified version of the Kaplan and Zingales (1997) index proposed by Baker et al. (2002), which excludes Tobin's Q:

$$KZ_{it} = -1.002 \times Cashflow_{it} + 3.139 \times Leverage_{it} - 39.368 \times Dividends_{it} - 1.315 \times Cash_{it}, \quad (2)$$

where $Cashflow_{i,t}$ is operating income before depreciation, $Leverage_{i,t}$ is total debt, $Dividends_{i,t}$ is total dividend payments, and $Cash_{i,t}$ is the amount of cash and marketable securities; all variables are scaled by total assets.

[2] Hadlock and Pierce (2010) Index

The SA index measures financial constraints based on firm size (total assets) and age, as follows:

$$SA_{it} = -0.737 \times Size_{it} + 0.043 \times Size_{it}^2 - 0.04 \times Age_{it}. \quad (3)$$

[3] Whited and Wu (2006) Index

The WW index extends the KZ framework by incorporating firm size and sales, among other variables. Following Whited and Wu (2006), we compute the index using the five most significant variables identified in their study:

$$WW_{it} = -0.098 \times Cashflow_{it} - 0.073 \times DivPos_{it} + 0.013 \times Leverage_{it} - 0.054 \times Size_{it} + 0.085 \times ISG_{it} \quad (4)$$

where $DivPos_{i,t}$ is an indicator equal to one if the firm pays cash dividends, and $ISG_{i,t}$ is the industry's sales growth rate. Note that our sample is restricted to the wholesale (KSIC code 46) and retail (KSIC code 47) trade industries.

[4] Cost of Equity

Next, we test whether tighter financial constraints caused by ESG reputational risks are associated with higher external financing costs. To measure the cost of equity, we apply the finite-horizon growth model of Gordon and Gordon (1997). The implied cost of equity is calculated using earnings forecasts as follows:

$$CoE_{it} = E_{t-1}[EPS_{i,t}]/P_{i,t-1}, \quad (5)$$

where $E_{t-1}[EPS_{i,t}]$ is the forecasted earnings per share for firm i, and $P_{i,t-1}$ is its stock price at the end of the previous period.

As implied by the model, the cost of equity can be interpreted as the internal rate of return (IRR) required by investors such that the current stock price reflects the present value of expected future cash flows. In this context, a higher IRR indicates more expensive equity financing. We use the median analyst forecast of EPS for the next fiscal year (FPI=2) from I/B/E/S as the proxy for expected earnings.

[5] Tobin's Q

Finally, we examine the effect of ESG reputational risk on firms' growth opportunities, using Tobin's Q (Tobin, 1969) as the proxy. The rationale is that a firm's market value reflects not only its current tangible assets but also the market's expectations of its future growth and profitability. Tobin's Q is computed as:

$$Q_{it} = \frac{\left(MarketCap_{i,t} + Size_{i,t} - CE_{i,t}\right)}{Size_{i,t}}. \qquad (6)$$

where $MarketCap_{i,t}$ is the product of the firm's share price and the number of shares outstanding at the end of quarter t, $Size_{i,t}$ is total assets, and $CE_{i,t}$ denotes controlling shareholders' equity.

Taken together, these three sets of tests allow us to assess whether ESG reputational risks manifest first as financial frictions, then as actual financing costs, and finally as reduced growth opportunities.

4. Results

4.1. The Impact of ESG Reputational Risks on Korean Retailers' Financial Frictions and Growth Opportunities

Firms operating in industries that are consumer-facing or positioned downstream in the supply chain tend to manage ESG-related reputational risks more actively (Li & Wu, 2020). This is because reputational risks are largely shaped by media coverage of corporate misconduct, which is ultimately consumed by final consumers. For such firms, improvements in reputation translate more directly into cash flows. Consistent evidence has also been documented for Korean firms as well. Motivated by this mechanism, we test whether ESG reputational risk increases financial frictions for KOSPI-listed wholesale and retail trade firms (KSIC codes 46–47), operating through a cash-flow-shrinkage channel.

Table 2 reports the results on the effect of ESG reputational risk (measured by the RepRisk Index) on financial constraints. Overall, the RRI is positively associated with financial constraints. In particular, when using the KZ and SA indices as dependent variables in columns (1) and (2), the coefficients on RRI are statistically significant. This indicates that as firms' negative ESG reputations worsen, consumer-facing firms in Korea face greater difficulty in raising external financing. For the SA index, the economic significance of RRI is also substantial, with its standardized impact greater than that of R&D expenditures or advertising expenses. By contrast, in column (3), the coefficient of RRI on the WW index is insignificant. This may be because the WW index places greater emphasis on investment dynamics and industry conditions, which are not as directly connected to ESG incidents, making it less sensitive to ESG risk.

Table 2: Impact of ESG Reputational Risks (RRI) on KOSPI Retailers' Financial Constraints

	KZ	SA	WW
	(1)	(2)	(3)
RRI	0.002*	0.0022***	0.0008
	(0.001)	(0.0004)	(0.0015)
Log(Market Cap)	-0.218***	0.008	-0.013***
	(0.016)	(0.006)	(0.001)
Log(Sales)	0.001	0.240***	-0.030***
	(0.017)	(0.007)	(0.001)
Sales Growth ($\times 10^{-2}$)	-0.001	-0.050*	0.011*
	(0.001)	(0.024)	(0.004)
Log(1+R&D)	0.009**	-0.005***	-0.001***
	(0.003)	(0.001)	(0.0003)
Log(1+Advertising)	0.024***	0.006***	-0.0004
	(0.004)	(0.001)	(0.0002)
Age	-0.015	-0.047***	-0.004*
	(0.024)	(0.009)	(0.002)
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
R^2	0.125	0.502	0.406
N	1,763	1,763	1,763
Sample Period	2012 - 2023		

Notes: This table presents estimates from the analysis of the association between firms' ESG reputational risk (measured by the RepRisk Index) and the financial constraint indices. The sample consists of firms listed in the KOSPI with KSIC industry codes 46 (wholesale trade) and 47 (retail trade) from 2012 to 2023. Standard errors are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Having established that reputational risks tighten financial constraints, we next examine whether these constraints translate into higher financing costs and reduced growth opportunities. Table 3 presents the estimated effects of ESG reputational risk on the cost of equity capital and growth opportunities. The results show that RRI enters significantly in both specifications, suggesting that ESG risks not only raise the cost of equity financing but also reduce firms' growth potential.

Based on equation (5), analysts/investors appear to perceive ESG risks as increasing cash flow uncertainty, thereby demanding higher compensation to hold the firm's stock. Likewise, the negative coefficient on Tobin's Q

suggests that ESG reputational risks directly depress firms' market valuations, which in turn undermines growth opportunities. These findings underscore the importance of ESG-related reputation for the business operations of consumer-facing firms, and highlight the necessity of actively managing public perception in this domain.

It is worth noting that the results in Table 3 are based on different sets of control variables across models. This reflects the fact that the determinants typically used in models of the cost of equity differ from those in models of Tobin's Q. The complete list of variables and exact model specifications are provided in Appendix 2.

Table 3: Impact of ESG Reputational Risks (RRI) on KOSPI Retailers' Capital Costs and Growth Opportunities

	Cost of Equity (1)	Tobin's Q (2)
RRI	0.0005*** (0.0002)	-0.005*** (0.001)
Cash Flow	-0.059 (0.223)	3.304*** (0.585)
ROE	0.055 (0.057)	-0.001 (0.024)
Additional Controls	Yes	Yes
Firm FE	Yes	Yes
Year FE	Yes	Yes
R^2	0.115	0.233
N	1,439	1,692
Sample Period	2012 - 2023	

Notes: This table reports estimates from the analysis of the association between firms' ESG reputational risk (measured by the RepRisk Index) and two outcomes: the implied cost of equity capital and Tobin's Q. The full list of control variables is provided in the Appendix. The sample consists of retail firms listed in the KOSPI index from 2012 to 2023. Standard errors are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

4.2. The Impact of ESG Reputational Risks on Large Retailers' External Financing and Growth Prospects

A large fraction of Korea's economic activity is accounted for by large conglomerates known as chaebol (Almeida et al., 2011). The KOSPI index, which forms the basis of our sample, is likewise dominated by these groups, with many large firms operating as their subsidiaries. As of 2023, 92 of the top 200 firms in the KOSPI200 index belong to business groups designated by the Korean government as large conglomerates subject to mutual investment limitations. Among these 200 firms, 15 are in the retail sector, and 6 of them are affiliated with chaebol.

Prior research (Ferris et al., 2003; Jung et al., 2024) suggests that chaebol affiliates may not rely entirely on external capital markets because of cross-subsidization within business groups. Moreover, since these groups operate across multiple sectors, they function as diversified portfolios, benefiting from a co-insurance effect that reduces financial constraints.

Against this backdrop, we test whether the large firm effect is observed in the wholesale and retail trade industries—sectors that are consumer-facing and thus particularly prone to reputational risks. Table 4 presents the results using only the subsample of large retail firms listed in the KOSPI200. The estimates show that the effect of ESG reputational risk is markedly weaker in the large-retailer subsample compared to the full sample, and the overall explanatory power (R^2) of the models also declines. For the financial constraint indices, only the SA index yields a marginally significant result. ESG reputational risk has no measurable effect on the cost of equity. For growth opportunities, the coefficient remains negative, but its significance diminishes relative to the full-sample results.

Note that Table 4 is based on ESG Incident Scores (IS) from Who's Good rather than the RepRisk Index. However, both measures yield qualitatively similar results: coefficients on ESG risk proxies remain consistent in sign and statistical significance. We rely on Who's Good data here because it allows for domain-level decomposition (environmental, social, governance), while corresponding results using the RepRisk RRI for the same sample and period are reported in Appendix 3. For space considerations, Table 4 reports only the coefficients on the ESG Incident Score variables. Results including control variables are provided in Appendices 1 and 2.

Table 4: Impact of ESG Reputational Risks (Incident Score) on KOSPI200 Retailers' External Financing and Growth

Type	Dependent Variables	Coefficients (Std. Error)	N	R^2
Financial Constraints	KZ	-0.0265 (0.0185)	280	0.059
	SA	0.0105* (0.0062)		0.176
	WW	0.0003 (0.0005)		0.0404
Capital Cost	CoE	-0.0041 (0.0031)	260	0.114
Growth Opportunities	Tobin's Q	-0.0272* (0.0148)	280	0.407

Notes: This table reports estimates from the analysis of the impact of firms' ESG reputational risk (measured by the Who's Good ESG Incident Score) on the financial constraint indices, Gordon's implied cost of equity capital, and Tobin's Q. The sample consists of firms listed in the KOSPI200 with KSIC industry codes 46 and 47 from 2019 to 2023. Control variables are included in the regressions but omitted from the table for brevity. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

To further unpack the heterogeneous effects, we disaggregate ESG risk into its three domains—

environmental, social, and governance. Table 5 reports results by individual ESG domain. Column (1) repeats the analysis of Table 4 using environmental risk scores, while columns (2) and (3) replace them with social and governance risk scores, respectively. The results are mixed. Using the WW index, we find a weakly significant positive effect of social risk, indicating that investors are particularly concerned with firms' exposure to social issues. By contrast, the KZ index produces an opposite result, showing a marginally significant negative effect of social risk. Finally, using the SA index, we find a significant positive effect of governance risk on financial constraints—an intuitive result given that our sample consists of large conglomerate-affiliated firms, which are often scrutinized for governance-related issues.

Table 5: Impact of Individual ESG Dimensions on KOSPI200 Retailers' External Financing and Growth

Type	Dependent Variables	E (1)	S (2)	G (3)
Financial Constraints	KZ	0.0360	-0.0369*	-0.0152
		(0.0265)	(0.0191)	(0.0221)
	SA	0.0115	-0.0017	0.0159**
		(0.0073)	(0.0049)	(0.0063)
	WW	-0.0004	0.0010*	-0.0007
		(0.0008)	(0.0006)	(0.0006)
Capital Cost	CoE	-0.0065	-0.0000	0.0063*
		(0.0044)	(0.003)	(0.0034)
Growth Opportunities	Tobin's Q	0.0024	-0.0078	-0.0319*
		(0.0249)	(0.0160)	(0.0191)

Notes: This table reports estimates from the analysis of the association between firms individual environmental (E), social (S), and governance (G) incident scores and the financial constraint indices, Gordon's implied cost of equity capital, and Tobin's Q. The sample consists of firms listed in the KOSPI200 with KSIC industry codes 46 and 47 from 2019 to 2023. Control variables are included in the regressions but omitted from the table for brevity. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Importantly, this pattern persists across specifications using the cost of equity and growth opportunities. Large retailers' cost of equity rises significantly only in response to governance-related risks, and their growth opportunities (as measured by Tobin's Q) decline significantly only in response to governance concerns.

These findings align with the institutional features of the Korean corporate landscape, where a significant portion of KOSPI200-listed retailers are affiliated with chaebol groups. Chaebols have often faced criticism over complex ownership and control structures, leadership succession disputes, and recurring governance controversies that heighten investor concerns and attract regulatory scrutiny (Campbell II and Keys, 2002). In this context, reputational risks arising from governance issues may be perceived as especially consequential, as they could undermine investor confidence in firms' long-term financial stability and governance quality.

In sum, these results suggest that while large wholesale and retail firms in Korea face fewer financing frictions from ESG reputational risks relative to smaller firms, governance-related risks remain a material operational concern that requires careful management.

5. Conclusions

This study analyzed how ESG-related reputational risks affect the financing and growth of Korean wholesale and retail firms, which are highly exposed to public perception due to their consumer-facing nature. Using media-based ESG risk measures from RepRisk and Who's Good, along with financial constraint indices (KZ, SA, WW), the implied cost of equity, and Tobin's Q, we tested whether negative reputations tighten access to external finance, raise financing costs, and reduce growth prospects.

Our analysis shows that ESG reputational risks significantly increase the financial constraints of retail firms, and these results are corroborated by evidence of higher costs of equity and lower growth opportunities. These findings suggest that for consumer-facing firms such as retailers, negative ESG reputations can erode financial flexibility and growth potential, underscoring the importance of reputational management as part of corporate strategy.

However, when focusing on the subsample of the largest 15 retail firms listed in the KOSPI200 index, these effects largely disappear. This attenuation is likely due to the size, profitability, and strong creditworthiness of large firms, which mitigate their reliance on external financing. At the same time, many of these firms are affiliated with chaebol groups, where internal capital markets and cross-subsidization reduce dependence on public capital markets.

Importantly, our results show that governance-related risks remain highly salient: large retailers exhibit significant increases in financial constraints, costs of equity, and declines in growth opportunities when faced with governance concerns, even as environmental and social risks are less influential. This finding highlights governance as a persistent operational risk factor for large conglomerate-affiliated retailers. While data limitations prevented a deeper exploration of chaebol-affiliated firms within this study, future research on the interaction between business group structures and ESG reputational risks in shaping financing costs would be particularly valuable.

This study has limitations. The analysis focuses only on wholesale and retail firms listed in the KOSPI200, which primarily represents large and relatively well-capitalized

firms, thereby limiting the generalizability of the findings to smaller or non-listed firms in the sector. In addition, the sample period is relatively short. Future research could broaden the coverage to include all listed firms in the wholesale and retail sector and extend the horizon to the post–COVID-19 years, which would provide a more comprehensive understanding of the role of ESG management and risk control in Korea's wholesale and retail industry.

Overall, our findings show that media coverage of ESG misconduct can shape investors' risk perceptions and, in turn, constrain retailers' access to external financing and growth. As Li and Wu (2020) point out, firms in close proximity to end consumers are more likely to be rewarded for a stronger ESG reputation through increased sales, customer loyalty, and positive reviews. Conversely, ESG controversies can trigger franchise-management disputes or consumer boycotts that erode brand value and cash flows, which in turn propagate into higher financing costs and diminished growth opportunities. Therefore, for wholesale and retail trade firms, ESG risk management cannot remain a symbolic exercise but must be embedded into operational practices to strengthen financial resilience and support long-term performance. Finally, our results underscore the importance of media oversight in ensuring that ESG principles are effectively implemented in corporate practices rather than treated as superficial commitments.

Declarations

Ethics Approval and Consent to Participate
This study did not involve human participants or animal subjects.

Competing Interests / Conflicts of Interest
The authors declare that they have no competing interests.

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Author Contributions
[First Author] conceived and designed the study, conducted the data analysis, and wrote the original draft. [Corresponding Author] supervised the project, secured funding, and critically revised the manuscript. All authors read and approved the final manuscript.

Data Availability Statement
The data that support the findings of this study are available from Who's Good, RepRisk, Compustat, and I/B/E/S but restrictions apply to their availability. These data were used under license for the current study and are therefore not publicly available.

Declaration of Generative AI and AI-assisted Technologies in the Writing Process
AI not used

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Appendixes

Appendix 1: Impact of ESG Incident Score on KOSPI200 Retailers' Financial Constraints

	KZ (1)	SA (2)	WW (3)
ESG IS	-0.026 (0.018)	0.011* (0.006)	0.0003 (0.0005)
Log(Market Cap)	-0.046 (0.045)	0.059*** (0.012)	-0.005*** (0.001)
Log(Sales)	-0.028 (0.083)	0.281*** (0.023)	-0.026*** (0.003)
Sales Growth ($\times 10^{-2}$)	-5.653 (9.316)	-12.863* (5.594)	2.390*** (0.283)
Log(1+R&D)	0.091*** (0.031)	0.006 (0.009)	0.001 (0.001)
Log(1+Advertising)	0.010 (0.008)	0.005* (0.002)	-0.004* (0.002)
Age	0.032 (0.040)	-0.041*** (0.011)	0.003** (0.001)
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
R^2	0.059	0.473	0.404
N	280		
Sample Period	2019 - 2023		

Notes: This table reports estimates from the analysis of the association between firms' ESG reputational risk (measured by the Who's Good ESG Incident Score) and the financial constraint indices. The sample consists of firms listed in the KOSPI200 with KSIC industry codes 46 and 47 from 2019 to 2023. Standard errors are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Appendix 2: Impact of ESG Incident Score on KOSPI200 Retailers' Capital Costs and Growth Opportunities

	Cost of Equity (1)	Tobin's Q (2)
ESG IS	-0.004 (0.003)	-0.027* (0.015)
Cash Flow	-0.110 (0.253)	1.781 (1.451)
ROE	0.040 (0.062)	-0.023 (0.315)
Log(Size)	0.086*** (0.018)	
Log(Total Debt)	-0.002 (0.003)	
Log(Market Cap)		0.465*** (0.039)
Log(Sales)		-0.088 (0.073)
Sales Growth ($\times 10^{-2}$)		4.256 (7.981)
Log(1+R&D)	-0.008 (0.005)	0.060** (0.025)
Log(1+Advertising)	-0.002** (0.001)	0.008 (0.006)
Age	-0.005 (0.007)	-0.037 (0.035)
Firm FE	Yes	Yes
Year FE	Yes	Yes
R^2	0.113	0.411
N	280	
Sample Period	2019 - 2023	

Notes: This table reports estimates from the analysis of the association between firms' ESG reputational risk (measured by the RepRisk Index) and two outcomes: the implied cost of equity capital and Tobin's Q. The sample consists of firms listed in the KOSPI200 with KSIC industry codes 46 and 47 from 2019 to 2023. Standard errors are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Appendix 3: Impact of ESG RRI on KOSPI200 Retailers' Financial Constraints

	KZ (1)	SA (2)	WW (3)
RRI	-0.0025 (0.0016)	0.0007* (0.0004)	-0.0005 (0.0005)
Log(Market Cap)	-0.061 (0.046)	0.064*** (0.013)	-0.005*** (0.001)
Log(Sales)	-0.055 (0.083)	0.284*** (0.023)	-0.026*** (0.003)
Sales Growth ($\times 10^{-2}$)	-5.688 (9.33)	-12.703* (5.594)	2.371*** (0.282)
Log(1+R&D)	0.089*** (0.031)	0.005 (0.009)	0.001 (0.001)
Log(1+Advertising)	0.011 (0.008)	0.004* (0.002)	-0.004 (0.002)
Age	0.039 (0.04)	-0.042*** (0.011)	0.003* (0.001)
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
R^2	0.057	0.480	0.406
N	360		
Sample Period	2019 - 2023		

Notes: This table reports estimates from the analysis of the association between firms' ESG reputational risk (measured by the RepRisk Index) and the financial constraint indices. The sample consists of firms listed in the KOSPI200 with KSIC industry codes 46 and 47 from 2019 to 2023. Standard errors are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.