Moderating Role of National CSR Ratings: Empirical Evidence on the Relationship Between CSR Disclosure and Firm Risk

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The growing importance of CSR has fueled extensive research on its link to firm risk, yet little attention has been given to how home-country CSR ratings shape this relationship, particularly for foreign firms listed on U.S. exchanges. This study examines the moderating effect of national CSR ratings in the relationship between firm CSR disclosure and risk. Using 23,579 firm-year observations from 2006 to 2018, we find that investors will evaluate socially responsible firms from countries with low CSR ratings more favorably. This study enriches our understanding of the CSR-firm risk relationship, providing important implications for investors and corporate managers.

Keywords: corporate social responsibility, CSR disclosure, systematic risk, idiosyncratic risk, national CSR ratings

INTRODUCTION

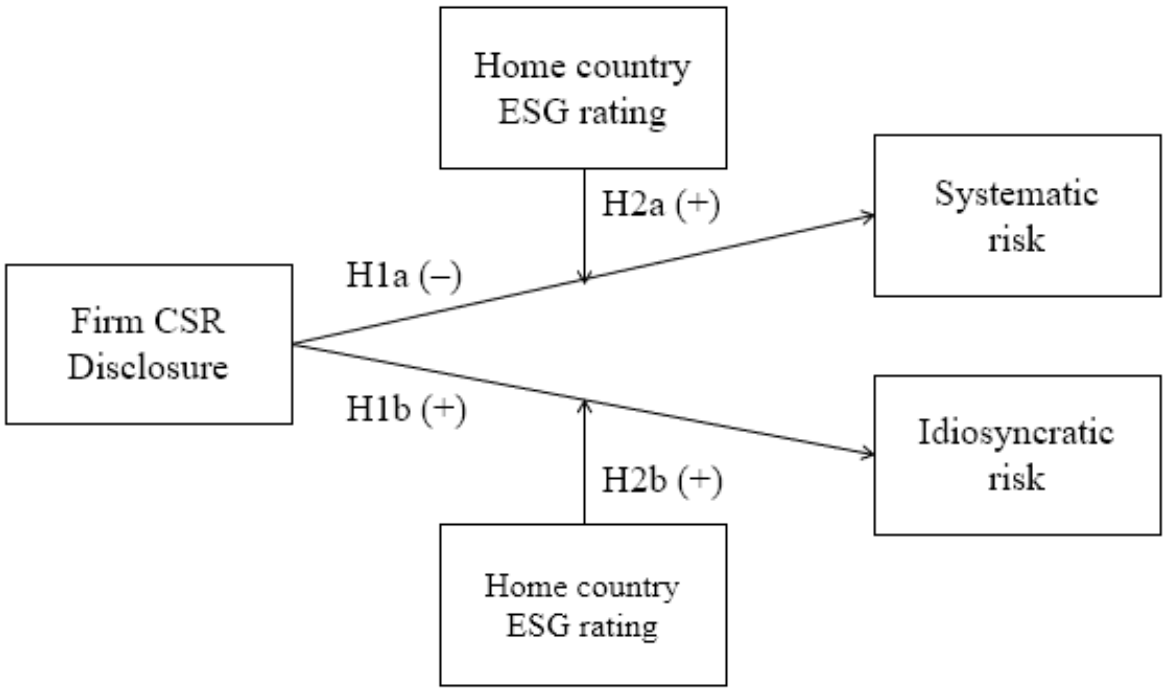
Today, corporate social responsibility (CSR) receives considerable public attention. We have witnessed a significant change in the nature and scope of CSR activities over the past few decades. Many firms have made CSR a strategic priority and an increasing number of firms have started to regularly issue CSR/sustainability reports. The growing importance of CSR has fueled extensive research on the antecedents and outcomes of CSR, as well as the contingencies influencing these relationships, from diverse theoretical perspectives (Aguinis & Glavas, 2012; Fatima & Elbanna, 2023; Malik, 2014; Mellahi et al., 2015; Wang et al., 2016). Particularly, extant literature has shown that CSR engagement can benefit firms in various ways, such as enhanced employee task performance and extra-role helping behavior (Shen & Benson, 2016), favorable assessments of analysts (Ioannou & Serafeim, 2015), and reduced capital constraints/increased access to finance (Cheng et al., 2014). Although there is limited evidence showing immediate financial benefits of CSR, firms engaging in CSR are likely to gain long-term benefits of "responsible competitiveness" and reduce exposure to environmental uncertainties (Harrison et al., 2010; Mahoney & Thorne, 2005; McWilliams & Siegel, 2011; Vishwanathan et al., 2020; T. Wang & Bansal, 2012).

The literature shows that CSR engagement influences firms' performance in the stock market (Alexander & Buchholz, 1978; Becchetti & Ciciretti, 2009; Wang et al., 2011). The stock market's reaction to corporate policies or practices is not simply a function of their inherent efficiency but is also socially

constructed based on the degree of institutionalization of the practice (Zajac & Westphal, 2004). That is, the market value of a practice increases as more firms adopt it. Today, CSR is more and more an institutionally expected normative response used by investors to evaluate firm performance. Increased stakeholder expectations, coupled with growth in firm efforts to manage these expectations, have heightened investor expectations that the firm will formally adopt CSR in its business operations. Considering the potential impact of CSR on shaping investors' perceptions of a firm, this paper aims to investigate whether the level of firm CSR information disclosed affects firm risk, as reflected in its stock price volatility. Specifically, we will explore the relationship between firm CSR disclosure and 1) systematic risk and 2) idiosyncratic risk.

The impact of CSR engagement on firm outcomes is contingent on various context factors (Wang et al., 2016). Researchers have explored several contingencies that influence the impact of CSR engagement on firm risk, including strategic marketing levers, repeated violations, industry, and economic conditions (Bouslah et al., 2016; Jo & Na, 2012; Luo & Bhattacharya, 2009; Shiu & Yang, 2017). Such contingencies shape how investors perceive firms' CSR engagement, resulting in differential effects of CSR on firm risk. Despite the increasing number of foreign firms publicly listed on U.S. stock exchanges as a result of the globalization of financial markets, whether and how a firm's home country characteristics impact the CSR-firm risk relationship have received little, if any, research attention. To contribute to the literature, this study focuses on the moderating role of home country CSR rating on the relationship between firm CSR disclosure and firm risk. Figure 1 illustrates the theoretical framework, and our contribution lies in identifying this missing link. By studying the moderating role of home country CSR ratings, this paper helps enhance our understanding of contingent factors influencing the impact of CSR engagement on corporate outcomes.

FIGURE 1
THEORETICAL FRAMEWORK



The country of origin plays a significant role in stakeholders' evaluation of a product or a firm. Prior literature in international marketing has well-documented how the country of origin influences consumers' evaluation of products designed or manufactured in different countries (e.g., Bilkey & Nes, 1982; Romeo

& Roth, 1992; Sharma, 2011). We propose that country of origin is likely to influence investors' evaluation of firms in the stock market, similar to its role in consumer evaluation of firms in the product market. Specifically, we argue that home country CSR ratings are likely to influence the perception of investors and other stakeholders regarding the CSR disclosure of publicly listed foreign firms on U.S. stock exchanges. We empirically investigate the relationship between firm CSR disclosure and firm risk, and, most importantly, examine whether this effect is moderated by the national CSR rating of the firm's origin country. It would be instructive to understand whether, if any, and to what extent the home country CSR ratings help explain the effect of firm CSR disclosure on firm risk. This study fills an important gap in the literature by examining the moderating effects of home country CSR ratings on the relationship between firm CSR disclosure and firm risk, illustrating how a country's CSR institutionalization influences investors' perceptions of the country's publicly listed firms.

Our hypotheses are tested using longitudinal regression analysis on an unbalanced panel of 2,986 unique firms listed on major U.S. stock exchanges from 30 countries between 2006 and 2018. The final sample consists of 23,579 firm-year observations.

THEORETICAL BACKGROUND

Firm Risk and Its Antecedents

Firm risk and its antecedents have been intensively studied in various disciplines including finance, management, and marketing (Orlitzky & Benjamin, 2001; Thomaz & Swaminathan, 2015). Firm risk reflects investors' assessments of the ability of a firm to deal with unexpected future environments. There are two components of a firm's total risk measured by firm stock price volatility (Sharpe, 1964). First, systematic risk, also known as market risk, refers to the portion of a stock's return that is related to macroeconomic fluctuations, indicating the level of stock price sensitivity to market movements. Firms that cushion themselves from the impact of stock market movements and deliver consistent cash flows enjoy lower systematic risk (McAlister et al., 2007). Second, idiosyncratic risk, also called unsystematic risk, represents the portion of stock price volatility that is attributed to firm-specific factors. It reflects revenue-generation stability from firm strategic choices or cash flow consistency that cannot be explained by the market (Luo & Bhattacharya, 2009).

Extant literature has well recognized the importance of firm characteristics and actions in risk reduction, such as CEO characteristics (Harrison et al., 2020), marketing investments in brand building and advertising (McAlister et al., 2007; Rego et al., 2009) and new partnership formation (Thomaz & Swaminathan, 2015). These characteristics and actions enhance firms' ability to stabilize the volatility of their stock prices when unexpected environmental changes occur.

Literature shows that firms benefit in various way from engaging in CSR activities (Cheng et al., 2014; Ioannou & Serafeim, 2015; Shen & Benson, 2016). In particular, as a firm's CSR engagement conveys information to investors about its future market riskiness, the link between CSR and firm risk has received much research attention (Chang et al., 2014; Jo & Na, 2012; Luo & Bhattacharya, 2009). Considering that investors care about a firm's commitment to corporate social responsibility issues (Doh et al., 2010), several studies have examined the capital market reaction to CSR, investigating the change in stock market value of firms following or rejecting CSR activities (e.g., Becchetti *et al.*, 2012).

Additionally, researchers have explored a wide range of contingencies influencing the impact of CSR engagement on firm risk, such as strategic marketing levers, repeated violations, industry, and economic conditions. Such contingencies shape how investors perceive firms' CSR engagement/performance, resulting in varying effects of CSR on firm risk. For example, Luo and Bhattacharya (2009) examined the moderating effects of R&D and advertising spending on the negative relationship between corporate social performance and firm risk. They illustrated that this relationship becomes stronger with higher advertising spending, but a simultaneous pursuit of CSR, advertising, and R&D is harmful, leading to increased firm risk. Shiu and Yang (2017) found that the insurance-like effects of CSR on stock price volatility are reduced with an increase in the number of negative events. Jo and Na (2012) found that the effect of risk reduction through CSR engagement is more economically and statistically significant in firms from controversial

industries than in those from non-controversial industries. A study by Bouslah *et al.* (2016) shows that the risk reduction effect of CSR engagement is stronger in adverse macroeconomic environments.

CSR Disclosure

With the growing societal emphasis on sustainability, CSR has increasingly become an institutionally expected normative response and a key criterion for investors in evaluating firm performance. Firms that fail to "play the game" (i.e., issue CSR report) may signal to investors either an inadequate normative response or a flawed, unsustainable business model, thereby undermining their prospects. A firm's inability to reduce socially irresponsible practices, or its decision not to disclose CSR-related information, can damage its reputation and leave it vulnerable to public scrutiny and criticisms, even when supported by sophisticated public relations strategies. Increased stakeholder expectations, coupled with growing efforts by firms to manage these expectations, including the mandatory or voluntary disclosure of firm CSR information, have raised investor standards regarding the integration of CSR in business operations. For example, a firm's addition to, deletion from, or continued presence on major CSR or sustainability indices provides investors with salient signals, especially in contexts where other non-financial information is not readily available (Hawn et al., 2018; Ramchander et al., 2012).

CSR disclosure can generate both benefits and potential penalties (Luo et al., 2017). On the one hand, disclosure reduces information asymmetry between a firm and its stakeholders (Verrecchia, 2001). To gain stakeholder recognition and rewards, CSR initiatives must be perceived as credible and actively communicated, as few stakeholders proactively search for such information in annual reports or on firm websites (Dwertmann et al., 2023; Eberle et al., 2013). On the other hand, signaling CSR through disclosure entails firm-specific costs. For example, firms exhibiting higher levels of CSR are more likely to be targeted by activist hedge funds (DesJardine et al. 2021).

Foreign Firms Listed in the U.S. Stock Exchanges

As a result of financial market globalization, investors in the U.S. stock markets are increasingly exposed to firms from different countries. Between 1980 and 2023, over 1,490 foreign firms went public in the U.S. Today, more than 530 of the world's largest and most influential international companies, spanning 45 countries, are listed on the NYSE, while over 960 foreign firms are listed on the NASDAQ stock market. As an increasing number of firms from different countries seek to go public on U.S. stock exchanges, investors are likely to consider the characteristics of these firms' home countries, in addition to common indicators of quality and prospects, when evaluating these foreign firms. However, to date, little research has explored whether and how a firm's home country CSR rating influences the relationship between CSR and firm risk. Ignoring the institutionalization of CSR at the country level is problematic, as stock market reactions to corporate policies are not solely driven by their intrinsic efficiency but are also shaped by social norms and expectations surrounding the practice (Zajac & Westphal, 2004). Prior research suggests that investors evaluate firms differently depending on the institutional context of their location. For example, Husted *et al.* (2016) find that firms engaging in CSR enjoy lower costs of equity financing in regions with high CSR density than those operating in areas with low CSR density. These findings underscore the significance of considering national CSR environments in understanding how investors perceive and respond to firms' CSR activities.

HYPOTHESES DEVELOPMENT

Effects of CSR Disclosure on Firm Risk

This study investigates the differential effects of CSR disclosure on systematic and idiosyncratic risk. We argue that as firms increase their CSR disclosure, the volatility of their stock returns becomes less sensitive to market-wide factors but more sensitive to firm-specific news and events. Accordingly, we hypothesize that CSR disclosure reduces systematic risk but increases idiosyncratic risk. These opposing effects are grounded in signaling theory, instrumental stakeholder theory and insurance-like arguments.

First, signaling theory suggests that costly firm actions can serve as credible signals to investors (Connelly et al., 2011). By disclosing more CSR information, firms convey their financial strength and flexibility in adapting to environmental changes, thereby increasing investor confidence in their ability to withstand unfavorable market conditions. In this sense, costly CSR disclosure can be interpreted as an indicator of superior managerial capability, leading investors to perceive such firms as less risky during economic downturns (Waddock & Graves, 1997). However, allocating substantial resources to enhance stakeholder perceptions may create resource constraints in other critical strategic areas, such as underinvesting in initiatives that improve organizational effectiveness and financial performance or misallocating resources needed to prepare for and respond to adverse firm-specific events. Consequently, heightened external institutional pressures combined with constrained internal resources can make firms that voluntarily engage in extensive CSR disclosure more vulnerable to adverse firm-specific events.

Second, according to instrumental stakeholder theory (Jones, 1995), CSR engagement can be strategically employed to secure essential resources and stakeholder support. Annual CSR reports and policy announcements enhance stakeholder awareness and reduce information asymmetry regarding a firm's CSR practices (Michaels & Grüning, 2017). This improved transparency facilitates access to heterogeneous resources, enabling firms to allocate profit-seeking investments more effectively, gain competitive advantages, and reduce market vulnerability. In contrast, firms with limited CSR disclosure may struggle to gain stakeholder support and exhibit less adaptability to environmental changes, thereby increasing their systematic risk. However, while greater CSR disclosure can strengthen stakeholder relations, it may also heighten exposure risk by attracting greater public attention to firm-specific news, prompting stronger investor reactions (Osinga et al., 2011). Furthermore, increased transparency can inadvertently reveal a firm's core competencies, potentially eroding its competitive edge and financial performance (Osinga et al., 2011).

Third, CSR can function as a form of protective insurance during periods of economic hardship. Prior research has shown that CSR engagement generates strategic, insurance-like effects on a firm's stock price in the face of negative events (Godfrey et al., 2009; Godfrey, 2005). Greater disclosure of socially responsible initiatives enables a firm to accumulate "moral capital," which serves as a buffer against unfavorable market conditions. For example, loyal customers are less likely to be swayed by competitors' offers or aggressive promotions during an economic downtown (Raju et al., 2009). Firms that disclose extensive information about customer-oriented CSR programs can strengthen customer loyalty, thereby reducing their vulnerability to future market fluctuations and mitigating systematic risks. However, increased transparency in CSR engagement can also elevate stakeholder expectations, which may, in turn, heighten the penalties for socially irresponsible actions, thereby increasing idiosyncratic risk. Once a firm positions itself, whether voluntarily or due to regulatory requirements, as socially responsible, stakeholders are likely to expect sustained adherence to high CSR standards. Any deviation from these standards may thus prove especially detrimental, as investors could question the firm's sincerity and interpret such lapses as "window-dressing," triggering stronger negative reactions (e.g., Shiu & Yang, 2017).

In line with the above arguments, we posit that CSR disclosure has divergent effects on different types of risk, mitigating systematic risk while amplifying idiosyncratic risk.

Hypothesis 1a: *CSR disclosure is negatively associated with systematic risk.*

Hypothesis 1b: *CSR disclosure is positively associated with idiosyncratic risk.*

Moderating Effect of National CSR Ratings

To better understand the boundary conditions of the relationship between CSR disclosure and firms risk, this study examines how a firm's home country attributes influence investors' evaluations and risk perceptions of CSR disclosure. Alden *et al.* (2006) note that globalization has increased consumers' exposure to products from diverse countries of origin. Similarly, investors are increasingly encountering firms from various countries seeking to list on U.S. stock exchanges. When evaluating these foreign firms, investors are likely to consider not only standard indicators of firm quality and growth potential but also

the characteristics of the firms' home countries. Accordingly, we argue that country-level sustainability—measured by Bloomberg's national CSR scores, which capture each country's environmental, social, and governance-related risks—plays a crucial role in shaping investor perceptions of firms listed on the U.S. market. Specifically, we propose that investors do not value all firms' CSR disclosures equally; rather, national CSR ratings shape how such disclosures are interpreted and how associated risks are perceived.

We suggest that the systematic risk reduction potential of CSR disclosure is likely to be amplified for firms from countries with low CSR ratings. As previously indicated, based on signaling theory, CSR engagement is costly and requires managers to allocate resources that could otherwise be used for investment in other value-enhancing projects. In countries ranking low in CSR, only the best firms rich in resources may be able to bear the costs of CSR practices. Additionally, the moral capital that stems from CSR will distinguish the firm from its socially irresponsible peers and make it more appealing in the eyes of stakeholders. As such, investors will view the stock of these firms as less risky investments.

While a firm's CSR engagement can play an insurance-like role of stabilizing its performance in stock markets, such effects are not equally distributed among different firms. For firms from countries where CSR is institutionalized or emphasized and receives substantial public attention, being a good corporate citizen is not unique to distinguish them from their peers. In contrast, a socially responsible firm whose home country ranks low in CSR may receive more favorable evaluation because investors may deem their superior social performance as a strong indicator of quality and prospects.

In light of the positive perception on CSR engagement in investors' evaluation of a firm when it is deemed as "scarce" in the firm's home country, we predict that home country CSR ratings will moderate the effect of firm CSR disclosure on systematic risk, such that the negative relationship between CSR disclosure and systematic risk is weaker for firms from countries with high CSR ratings and stronger for firms from countries with low CSR ratings.

Hypothesis 2a: *Home country's CSR rating positively moderates the relationship between a firm's CSR disclosure and systematic risk.*

National CSR ratings are also likely to influence the relationship between CSR disclosure and idiosyncratic risk by shaping 1) investors' perceptions of a firm's capacity to pursue growth opportunities and 2) their attitude toward the firm's socially irresponsible practices. First, given cross-country differences in stakeholder expectations (Gardberg & Fombrun, 2006), the costs of obtaining legitimacy vary across institutional environments (Campbell et al., 2012). For example, to achieve sustainability index inclusion, firms often dedicate substantial resources to enhancing the visibility of their CSR activities, in ways such as issuing CSR reports and engaging external CSR assurance providers to audit CSR disclosures (Durand et al., 2019). This resource-constrained concern is likely to be more pronounced in countries where legitimacy is closely tied to CSR engagement, as spending is more compliance-driven than strategic. In contrast, in less institutionalized CSR environments, investors may view CSR spending as a strategic investment and be less concerned about potential lost market opportunities. Thus, high (low) home country CSR ratings enhance (relieve) resource-constraint concerns, as societies with high (low) CSR awareness require more (less) CSR investment to gain legitimacy.

Second, the more CSR is institutionalized as the norm in a society and the more widely CSR practices are adopted across firms, the more stakeholders punish firms for their socially irresponsible practices (Flammer, 2013). Expectation plays an important role in stakeholders' reaction to socially irresponsible practices/events. When external pressure is high, stakeholders tend to hold firms' CSR engagement to high standards, which may amplify their disappointment and negative reaction to socially irresponsible practices/events. In places and times of higher CSR awareness, announcement of socially irresponsible practices or occurrence of negative events is more likely to attract public attention, ruin a firm's reputation and scare off key stakeholders such as customers, suppliers, and strategic partners, which will make investors perceive the firm as riskier and reduce investors' confidence.

Last but not least, stakeholders make judgements about firms when assessing CSR activities (Sen et al., 2006), and distinguish between actions driven by intrinsic motives, such as corporate citizenship, and those

driven by external pressures, such as compliance (Ellen et al., 2006; Groza et al., 2011). This perception depends partially on the national CSR rating of the firm's home country. In countries where CSR is less institutionalized, CSR engagement is more likely to rooted in noble managerial motives or sound economic reasons rather than regulatory compliance, leading stakeholders to view the firm more favorably (Crilly et al., 2016). CSR news also tends to have less public impact where CSR awareness is low. In contrast, in highly institutionalized CSR environments, CSR may be compliance-driven, leading stakeholders to undervalue social performance (Wagner et al., 2009; Yoon et al., 2006) and react unfavorably to perceived inauthenticity (Cording et al., 2014). Stakeholders in such contexts may be especially punitive toward socially irresponsible acts, thereby amplifying the positive relationship between CSR disclosure and idiosyncratic risk.

Thus, we hypothesize that a firm's home country CSR rating positively moderates the positive relationship between CSR disclosure and idiosyncratic risk, such that the relationship is stronger for firms from countries with high CSR ratings and weaker for those from countries with low CSR ratings.

Hypothesis 2b*: Home country's CSR rating positively moderates the relationship between a firm's CSR disclosure and idiosyncratic risk.*

METHODOLOGY

Sample Construction

To construct our sample, we begin by compiling a list of firms listed on the Nasdaq Stock Exchange in the U.S. from the NASDAQ.com website. Specifically, our sample includes both the U.S. firms listed and the foreign firms cross-listed. We begin our sample with their ticker symbols available in the Bloomberg ESG database. Next, we extract stock market data from Compustat database, and accounting data from Center for Research on Security Prices (CRSP) database. After matching records across all three databases and eliminating observations with missing ESG and financial information, as well as firms with fewer than two observations or those in a country with only one unique firm during the sample period, our final sample comprises a total of 23,579 firm-year observations. The final sample consists of 2,986 unique firms (392 foreign firms and 2,594 US firms) and covers 30 countries from all over the world from 2006 to 2018. The sample primarily includes firms from the United States (86.6%), Canada (3.3%), China (1.6%) and Britain (1.6%).

Bloomberg ESG Scores

The ESG scores extracted from the Bloomberg ESG database have been used in several studies on CSR in recent years (e.g., Baldini *et al.*, 2018; Tamimi & Sebastianelli, 2017). Bloomberg ESG scores are calculated using information from self-disclosing sources, such as company websites, annual reports, and direct communication. In particular, the Bloomberg ESG metrics were constructed based on direct communications with the companies to ensure accuracy and consistency. Only comparable data is included, and the Bloomberg ESG scores are tailored to different industry sectors. The higher a firm's ESG score, the more voluntary and mandatory ESG information a firm discloses to the public, implying a higher level of the firm's commitment to transparency and accountability of environmental, social, and corporate governance issues. In other words, Bloomberg ESG scores represent the tendency toward information disclosure regarding environmental, social, and governance issues, rather than the qualities of ESG efforts or ratings based on strength or concern.

Bloomberg began collecting ESG scores of firms in 2005 and currently provides ESG scores for over 9,000 firms across more than 70 countries. The Bloomberg ESG scores provide insight into several sustainability issues or ESG metrics, including environmental (e.g., air quality, water & energy management), social (e.g., diversity, health & safety), and governance (e.g., board independence, structure, and tenure; shareholders' rights, executive compensation). These ESG scores are widely used in decision-making processes (Eccles et al., 2011). In this study, we use the overall ESG which represents the overall score of the three ESG metrics (environmental, social and governance) as a proxy of firm CSR engagement.

However, the extant literature has raised several concerns regarding disclosure scores, such as non-distribution-free properties (McCabe, 1989), high kurtosis and skewness (Tsalavoutas, 2011), and sensitivity to outliers (Hail, 2002). Following Baldini *et al.* (2018) and based on the research of Elzahar *et al.* (2015), Glaum *et al.* (2013), and Nikolaev and van Lent (2005), we use dense rankings to calculate percentile rank of firm level ESG scores and use the transformed ESG (*FirmESG*) as our firm-level CSR engagement measurement in our multivariate analyses.

$$FirmESG_{i,t} = \frac{Rank(Bloomberg\ ESG\ score)_{i,t} - 1}{MaxDense_t - 1} \quad (1)$$

where $FirmESG_{i,t}$ is the percentile rank of firm *i* during year *t*, $Rank(Bloomberg\ ESG\ score)_{i,t}$ is the rank of firm *i* during year *t*, and $MaxDense_t$ is the sample size minus the number of ties for year *t*. The Bloomberg ESG score is ranked in ascending order so that FirmESG increases with the value of ESG score (e.g., Glaum *et al.*, 2013; Hail, 2002).

At the country level, Bloomberg provides a detailed "ESG Country Strategic Risk" analysis based on the multiple indicators from environmental (e.g., carbon intensity per GDP, crude oil reserves per capita), social (e.g., share of women employed, life expectancy at birth), strategic governance (e.g., regulatory quality, R&D expenditure as percent of GDP) and economics (e.g., budget surplus/deficit as percent of GDP, banking sector asset quality). We use this national ESG rating (*CountryESG*) as the moderator in our multivariate analyses.

Empirical Model and Measurement

To examine the relationship between firm CSR engagement, national CSR rating and firm risk, we perform multivariate regression analysis using unbalanced panel data. Specifically, we estimate the following four regression models:

$$Y_{i,t} = \beta_0 + \sum_{j=1}^{9} \gamma_j\ FirmControl_{j,i,t-1} + ADR + \varepsilon_{i,t} \quad (2)$$

$$Y_{i,t} = \beta_0 + \beta_1\ FirmESG_{i,t-1} + \sum_{j=1}^{9} \gamma_j\ FirmControl_{j,i,t-1} + ADR + \varepsilon_{i,t} \quad (3)$$

$$Y_{i,t} = \beta_0 + \beta_1\ FirmESG_{i,t-1} + \beta_2\ CountryESG_{i,t-1} + \sum_{j=1}^{9} \gamma_j\ FirmControl_{j,i,t-1} + ADR + \varepsilon_{i,t} \quad (4)$$

$$Y_{i,t} = \beta_0 + \beta_1\ FirmESG_{i,t-1} + \beta_2\ CountryESG_{i,t-1} + \beta_3\ Interaction_{i,t-1} + \sum_{j=1}^{9} \gamma_j\ FirmControl_{j,i,t-1} + ADR + \varepsilon_{i,t} \quad (5)$$

where *Y* is our dependent variable, in measuring firm's risk, either proxied by systematic/market risk (*Beta*) or idiosyncratic/firm-specific risk (*Residuals*). Following (Oikonomou *et al.* (2012), we use the capital asset pricing model (CAPM) (Sharpe, 1964) to estimate the firm's beta, or systematic risk, calculated by the slopes from the regression of daily firm stock returns on the daily market return over one year. We estimate idiosyncratic risk as the standard deviation of residuals from the CAPM model (i.e., the root mean squared error from the regression of daily stock returns). In this study, idiosyncratic risk is measured by the annualized standard deviation of such residuals over one year. Although some studies (e.g., Amit & Wernerfelt, 1990; Chatterjee *et al.*, 1999) suggest that systematic risk is more relevant to investors because of their diversified portfolios, the idiosyncratic risk is inherent in a firm's operation and management and independent from market influence, reflecting variation in stock returns due to firm-specific factors or events (e.g., innovations, and strikes). We expect that the impact of firm CSR engagement and national

ESG rating on firm financial risk may differ between systematic risk and idiosyncratic risk. Unlike prior studies that only focus on systematic risk (e.g., Albuquerque *et al.*, 2019) or idiosyncratic risk (e.g., Chen *et al.*, 2018), we examine the impact of CSR engagement on both types of risk to explore this possibility.

Our primary variable of interest, *FirmESG*, discussed in the earlier section, represents the level of a firm's CSR engagement. *CountryESG* represents the ESG rating of the country where the firm is located. To test Hypothesis 2, we calculate an interaction term between firm CSR engagement and its home country's ESG rating, by multiplying the mean-centered *FirmESG* and the mean-centered *CountryESG*, or (*FirmESG* - mean of *FirmESG*) * (*CountryESG* - mean of *CountryESG*), to reduce the potential problem of multicollinearity. Furthermore, *FirmControl* is a vector of firm-level characteristic variables used in our analyses to capture the firm-level variation to control for various factors that may affect firm risk. We follow previous CSR-risk studies (Cai et al., 2016; Oikonomou et al., 2012) and include the following control variables: share turnover ratio (*Turnover*) calculated by the stock volume divided by the number of shares outstanding, firm size (*Size*) measured as the nature logarithm of total assets in dollars, one year geometric average returns of stock (*Return*) calculated by the compounding rate of daily stock returns for one year, dividend yield (*DivYield*) estimated as the logarithm of one plus average quarterly dividend yields for one year; firm age (*Age*) defined as the logarithm of one plus the number of months on CRSP database, financial leverage (*Leverage*) defined as the ratio of total debt to total assets, profitability defined as return on assets (*ROA*), or the ratio of operating income after depreciation to total assets, growth opportunities estimated as Tobin's Q ratio (*TobinQ*) or market-to-book ratio, and investment opportunities (*CAPEX*) defined as the ratio of sum of capital expenditure, advertising expense, and research and development expenses to total sales. Lastly, we include the indicator of an American depositary receipt (*ADR*) for a foreign company's stock traded in the U.S. stock exchange.

To mitigate the impact of outliers, we winsorize all financial variables at the 1% and 99% levels. To investigate the impact of collinearity in our regression models, we perform the variance inflation factor (VIF) test on our variables of interest: FirmESG, CountryESG, the interaction term between the two, as well as all the firm-level variables and the ADR indicator. The VIF test results show that all the associated variance inflation values are below the value of 2. Therefore, the results in our panel regression models are not affected by the multicollinearity issue, since the VIFs are within the threshold of 10 (Hair et al., 2009). Furthermore, we control for industry and year-fixed effects in all our specifications to account for firms' industry characteristics and the changing economic conditions in specific years. Our multivariable analysis includes industry dummies based on the SIC four-digit codes, as classified by the Fama and French 48 industry classification. The subscript *i* refers to sample firms, and the subscript *t* refers to sample years. Lastly, the explanatory variables are lagged one year to alleviate endogeneity concerns. The firms included in our unbalanced panel data have at least two-year observations and the countries included have at least two unique firms during the sample period. Standard errors are clustered by firms and years to adjust for arbitrary heteroscedasticity, cross-sectional, and time-series correlation (Arellano, 1987).

RESULTS

Descriptive Statistics

Table 1 reports the descriptive statistics for the dependent and independent variables used in this study. Firm-specific variables, except for the country- and firm-level ESG data provided by Bloomberg, are winsorized at the 1st and 99th percentiles to mitigate the impact of outliers. Our average sample firm has a beta of 1.1 and an annualized standard deviation of the residuals from the CAPM model of 34.2%, with one-year stock return of 15.5%. In addition, the average firm exposes to a leverage ratio of 22% and return on assets of 7.7%. In our sample, 13.5% represents foreign companies traded in the NASDAQ. Regarding the *FirmESG*, the mean (median) value is 0.203 (0.110). In addition, *CountryESG* ranges between 17.51 and 64.61, with the standard deviation of 4.414 and the mean (median) value of 55.576 (56.920).

TABLE 1
SUMMARY STATISTICS

Variable	N	Mean	SD	Min	Median	Max
Dependent variables						
Beta	23,579	1.141	0.573	-0.045	1.079	3.020
Residuals	23,579	0.342	0.196	0.110	0.285	1.132
Independent variables						
Turnover	23,579	0.006	0.006	0.000	0.005	0.038
Size	23,579	7.608	2.176	2.821	7.547	13.469
Return	23,579	0.155	0.465	-0.746	0.111	2.182
DivYield	23,579	0.004	0.006	0.000	0.002	0.029
Age	23,579	4.297	0.540	2.549	4.389	4.948
Leverage	23,579	0.220	0.202	0.000	0.181	0.900
ROA	23,579	0.077	0.165	-0.778	0.098	0.398
TobinQ	23,579	1.925	1.396	0.686	1.430	8.738
CAPEX	23,579	0.041	0.050	0.000	0.024	0.273
ADR	23,579	0.135	0.341	0.000	0.000	1.000
FirmESG	23,579	0.203	0.206	0.000	0.110	0.990
CountryESG	23,579	55.576	4.414	17.510	56.920	64.610

Notes: All variables, except for FirmESG and CountryESG, are winsorized at the 1% and 99% levels.

Table 2 reports Pearson correlation coefficients between all variables. The results show a statistically significant correlation ($p < 0.01$) between firm risk and most firm-level control variables, except for the indicator of ADR and idiosyncratic risk. Specifically, *Turnover*, *TobinQ*, and *CAPEX* are positively correlated with both systemic risk (*Beta*) and idiosyncratic risk (*Residuals*), while *DivYield*, *Age*, and *ROA* are negatively correlated with both financial risks. However, *Size*, *Return*, and *Leverage* are positively related to *Beta* but negatively related to *Residuals*, reflecting the opposite bivariate correlation between these three firm-specific variables and the two types of financial risk. Both country- and firm-level ESG are negatively associated with two types of financial risk.

TABLE 2
PEARSON CORRELATION COEFFICIENTS

	Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1)	*Beta*	1						
(2)	*Residuals*	0.309***	1					
(3)	*Turnover*	0.324***	0.27***	1				
(4)	*Size*	0.041***	-0.503***	0.012*	1			
(5)	*Return*	0.036***	-0.148***	-0.025***	-0.026***	1		
(6)	*DivYield*	-0.171***	-0.279***	-0.065***	0.259***	-0.042***	1	
(7)	*Age*	-0.064***	-0.231***	-0.046***	0.106***	0.027***	0.035***	1
(8)	*Leverage*	0.096***	-0.028***	0.098***	0.235***	-0.037***	0.153***	0.013**
(9)	*ROA*	-0.13***	-0.469***	-0.074***	0.286***	0.109***	0.14***	0.098***
(10)	*TobinQ*	0.07***	0.119***	0.093***	-0.282***	0.246***	-0.171***	-0.079***
(11)	*CAPEX*	0.11***	0.079***	0.126***	0.021***	-0.061***	-0.067***	-0.061***
(12)	*ADR*	0.03***	0.006	0.019***	0.27***	-0.021***	0.088***	-0.047***
(13)	*FirmESG*	-0.031***	-0.267***	0.016**	0.609***	-0.029***	0.173***	0.142***
(14)	*CountryESG*	-0.026***	-0.047***	-0.049***	-0.117***	0.054***	-0.051***	0.107***

		(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1)	*Beta*							
(2)	*Residuals*							
(3)	*Turnover*							
(4)	*Size*							
(5)	*Return*							
(6)	*DivYield*							
(7)	*Age*							
(8)	*Leverage*	1						
(9)	*ROA*	0.081***	1					
(10)	*TobinQ*	-0.084***	-0.081***	1				
(11)	*CAPEX*	0.114***	0.195***	0.04***	1			
(12)	*ADR*	0.032***	0.052***	-0.059***	0.116***	1		
(13)	*FirmESG*	0.123***	0.168***	-0.053***	0.103***	0.342***	1	
(14)	*CountryESG*	-0.034***	-0.042***	0.036***	-0.063***	-0.416***	-0.077***	1

* p < .1
** p < .05
*** p < .01

Multivariate Analysis

Using regression analysis, we examine how the firm ESG is related to systematic risk (Hypothesis 1a) and idiosyncratic risk (Hypothesis 1b). We also investigate the moderating effect of country-level ESG on the relationship between firm ESG and firm risk (Hypotheses 2a and 2b). We report the empirical results in Table 3. The first row of Table 3 indicates the dependent variable used in the model (*Beta* or *Residuals*). The first column for each type of firm risk (Models 1 and 5) presents the results of the panel regressions, which control for both firm-level variables and industry and year fixed effects (Equation 2). In the remaining specifications of Table 3, we include firm ESG, along with the controls (Equation 3), as shown in the second column (Models 2 and 6). We further incorporate country ESG into our analysis (Equation 4), as shown in the third column (Models 3 and 7). Lastly, we include the interaction term between country- and firm-level ESG (Equation 5), which is shown in the fourth column (Models 4 and 8).

TABLE 3
PANEL REGRESSION ANALYSIS RESULTS

Dependent Variable	Systematic risk (Beta)				Idiosyncratic risk (Residuals)			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Turnover	23.453***	23.046***	23.010***	23.032***	5.867***	5.927***	5.916***	5.922***
	(2.251)	(2.172)	(2.180)	(2.183)	(0.379)	(0.377)	(0.379)	(0.378)
Size	0.046***	0.072***	0.072***	0.072***	-0.043***	-0.047***	-0.046***	-0.047***
	(0.0067)	(0.006)	(0.006)	(0.006)	(0.001)	(0.001)	(0.001)	(0.0014)
Return	0.091	0.084	0.084	0.085	-0.022	-0.021	-0.021	-0.021
	(0.066)	(0.067)	(0.067)	(0.067)	(0.013)	(0.013)	(0.013)	(0.013)
DivYield	-12.454***	-11.637***	-11.653***	-11.623***	-3.733***	-3.854***	-3.860***	-3.852***
	(1.744)	(1.714)	(1.722)	(1.723)	(0.452)	(0.457)	(0.458)	(0.458)
Age	-0.078***	-0.068***	-0.069***	-0.069***	-0.026***	-0.027***	-0.027***	-0.027***
	(0.017)	(0.017)	(0.017)	(0.017)	(0.004)	(0.004)	(0.004)	(0.004)
Leverage	0.166***	0.136***	0.135***	0.135***	0.097***	0.101***	0.101***	0.101***
	(0.027)	(0.027)	(0.027)	(0.027)	(0.011)	(0.010)	(0.010)	(0.010)
ROA	-0.544***	-0.561***	-0.562***	-0.561***	-0.370***	-0.367***	-0.367	-0.367***
	(0.068)	(0.069)	(0.070)	(0.069)	(0.019)	(0.019)	(0.019)***	(0.019)

TobinQ	0.011	0.016	0.016	0.016	-0.010***	-0.011***	-0.011***	-0.011***
	(0.012)	(0.011)	(0.011)	(0.011)	(0.001)	(0.001)	(0.001)	(0.001)
CAPEX	0.472***	0.478***	0.475***	0.486***	0.152***	0.151***	0.150***	0.153***
	(0.137)	(0.136)	(0.137)	(0.137)	(0.035)	(0.035)	(0.035)	(0.035)
ADR	-0.029	0.011	0.003	0.0008	0.063***	0.057***	0.055***	0.054***
	(0.020)	(0.019)	(0.021)	(0.022)	(0.005)	(0.005)	(0.005)	(0.005)
FirmESG		-0.406***	-0.404***	-0.396***		0.060***	0.061***	0.063***
		(0.046)	(0.045)	(0.045)		(0.009)	(0.009)	(0.009)
CountryESG			-0.0014	-0.0017			-0.0005*	-0.0005**
			(0.001)	(0.001)			(0.0002)	(0.0003)
Interaction				0.0066***				0.0018***
				(0.003)				(0.0006)
Intercept	0.656***	0.507***	0.582***	0.601***	0.734***	0.756***	0.780***	0.785***
	(0.064)	(0.053)	(0.083)	(0.087)	(0.021)	(0.022)	(0.024)	(0.024)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	23,579	23,579	23,579	23,579	23,579	23,579	23,579	23,579
R-squared	0.3258	0.3361	0.3362	0.3364	0.5817	0.5837	0.5837	0.5838

Notes: All independent variables are lagged by one year. Standard errors are clustered by firms and years to adjust for arbitrary heteroscedasticity, cross-sectional, and time-series correlation. The numbers in parentheses are Heteroskedasticity consistent standard errors. All variables, except for FirmESG and CountryESG, are winsorized at the 1% and 99% levels.

* p < .1
** p < .05
*** p < .01

When systematic risk (*Beta*) is the dependent variable, our results show statistically significant signs of these following control variables: Turnover (+), Size (+), DivYield (−), Age (−), Leverage (+), ROA (−), and CAPEX (+). When idiosyncratic risk (*Residuals*) is the dependent variables, most of the results remain the same. However, the coefficients on *TobinQ* and *ADR* become statistically significant. Specifically, idiosyncratic risk is associated negatively with growth opportunities (*TobinQ*) and positively with ADR, suggesting that growth opportunities and foreign companies play an important role in idiosyncratic risk. In addition, the results show significantly negative relation between size and idiosyncratic risk (*Residuals*). Interestingly, the coefficient on one-year return is not statistically significant, suggesting returns do not play an important role after controlling for other firm-level factors. Our model explains between 32.58% and 33.64% of the total variance in systematic risk model (*Beta*) and explains between 58.17% and 58.38% of the total variance in idiosyncratic risk model (*Residuals*).

Regarding the results of our primary variable of interest, the coefficient on *FirmESG* in the systematic risk (*beta*) model is negative and statistically significant in all three specifications. This supports Hypothesis 1a: a negative relation between systematic risk and firm CSR engagement. The coefficient on *FirmESG* in the idiosyncratic risk (*residuals*) model is positive and statistically significant in all three specifications, suggesting a positive relation between idiosyncratic risk and firm CSR engagement, which is consistent with Hypothesis 1b. In addition, our findings of statistically significant positive relation between the interaction term and both types of firm risk confirm the moderating role of home country's ESG ratings on the relationship between firm CSR engagement and firm risk (Hypothesis 2a and Hypothesis 2b). In conclusion, the results reported in Table 3 confirm all our hypothesized relationships, with the significance at the 99% level. Figures 2 and 3 illustrate the significant moderating effect of home country's ESG ratings.

FIGURE 2
MODERATING EFFECT (SYSTEMATIC RISK AS DV)

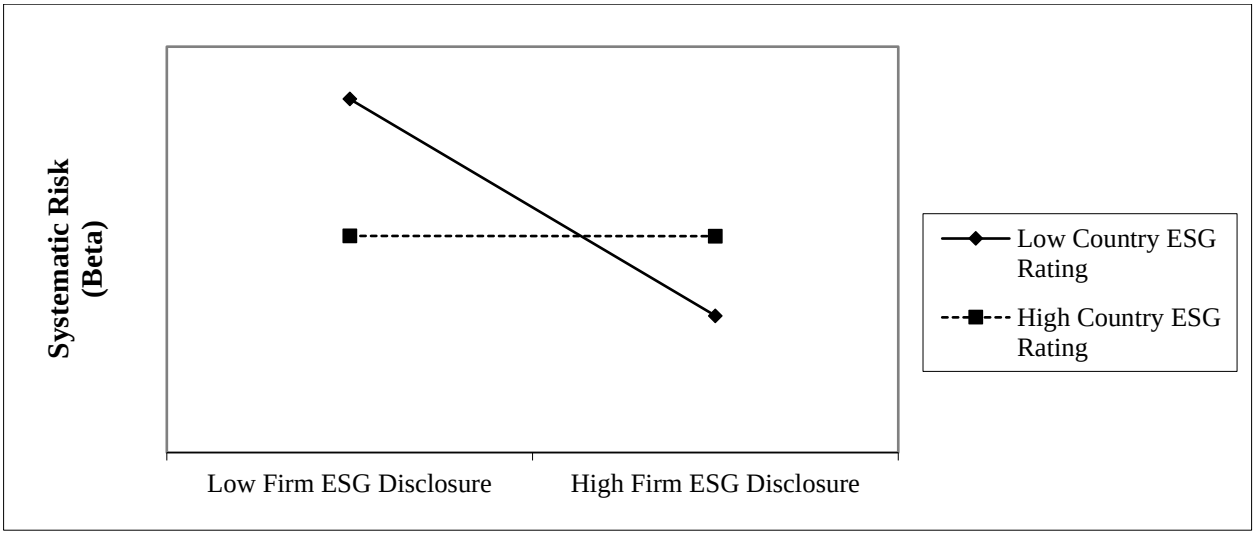
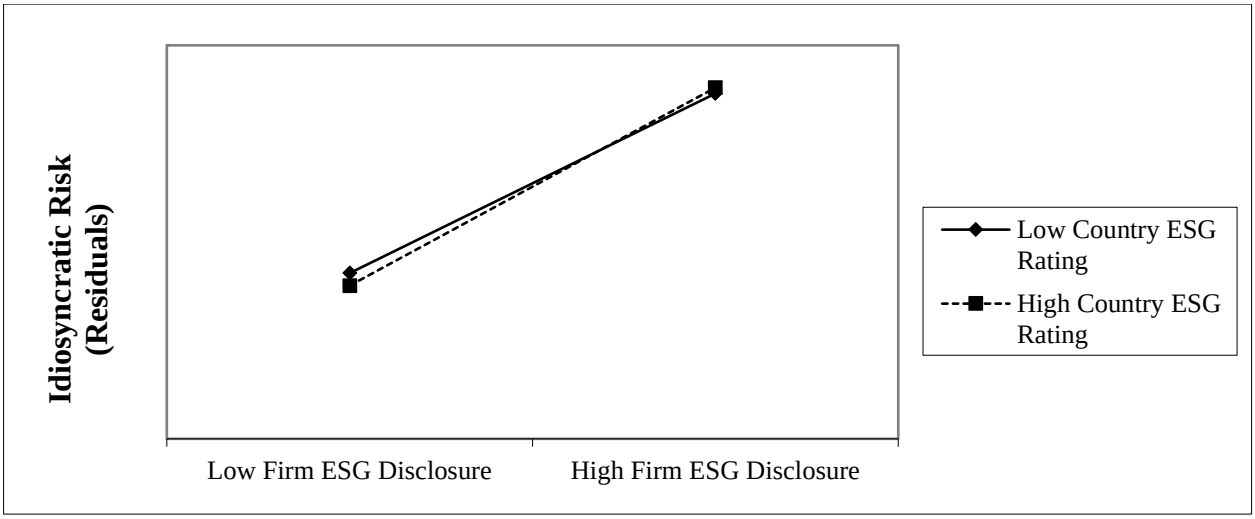


FIGURE 3
MODERATING EFFECT (IDIOSYNCRATIC RISK AS DV)



Endogeneity Controls

We recognize a potential simultaneity bias between *FirmESG* and firm risk (*Beta* or *Residuals*) because both variables can be endogenous (Chen et al. 2018). We employ a two-stage least squares method to address concerns about endogeneity, driven by potential simultaneity bias and reverse causality. We use the instrumental variable approach to examine the causal effect of ESG on firm risk. Similar to Cai *et al.* (2016), we estimate the regressions in a simultaneous equation framework, where the *FirmESG* variable lagged by two years as the instrument is used in the first stage. Below are the equations.

First stage:

$$FirmESG_{i,t-1} = \alpha_0 + \alpha_1 FirmESG_{i,t-2} + \sum_{j=1}^{3} \delta_j FirmControl_{j,i,t-1} + \varepsilon_{i,t}$$

Second stage:

$$Y_{i,t} = \beta_0 + \beta_1 FirmESG_{i,t-1} + \beta_2 CountryESG_{i,t-1} + \beta_3 Interaction_{i,t-1} + \sum_{j=1}^{9} \gamma_j FirmControl_{j,i,t-1} + ADR + \varepsilon_{i,t} \quad (6)$$

In addition to the two-year lagged firm ESG, we include three firm control variables in the first stage: firm size (*Size*), firm age (*Age*), and profitability defined as return on assets (*ROA*). In addition, we control for industry and year-fixed effects in both the first and the second stages. The first-stage F test is highly significant, indicating that the relevance assumption of our choice of instrumental variables is satisfied.

The results, reported in Table 4, further confirm the negative relationship between FirmESG and Beta, as well as the positive relationships between FirmESG and Residuals and the interaction term and both types of financial risk, with a significance level of 99%.

TABLE 4
TWO STAGE LEAST SQUARE REGRESSION RESULTS

Dependent Variable	Systematic risk (Beta)			Idiosyncratic risk (Residuals)		
	Model 2	Model 3	Model 4	Model 6	Model 7	Model 8
FirmESG	-0.414***	-0.411***	-0.403***	0.068***	0.068***	0.070***
	(0.024)	(0.024)	(0.024)	(0.006)	(0.006)	(0.006)
CountryESG		-0.002*	-0.002**		-0.0004*	-0.0006**
		(0.0009)	(0.0009)		(0.0002)	(0.0002)
Interaction			0.007***			0.002***
			(0.003)			(0.0007)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	23,579	23,579	23,579	23,579	23,579	23,579
R-squared	0.3418	0.3419	0.3421	0.5888	0.5888	0.5890

Notes: This table displays the results of the two-stage least square regressions. Control variables are included but not reported (see Equation 6). The numbers in parentheses are Heteroskedasticity consistent standard errors.
* p < .1
** p < .05
*** p < .01

Firm Fixed Effects

We employ various firm-specific control variables and include year and industry fixed effects in our baseline models to examine the relationship between firm risk and CSR. We further run our analysis with including firm fixed effect but eliminating the ADR and industry dummies. The results, reported in Table 5, show that the strong negative relation between *FirmESG* and *Beta* (p<0.01) and positive relation between *FirmESG* and *Residuals* (p<0.1) continue to hold. However, we observe that the coefficient of interaction

term become statistically insignificant. By controlling for firm fixed effects, we account for any heterogeneity in the cross-section of firms, thus essentially exploring how changes in risk vary with changes in CSR within the same firm. Since time variations in national ESG ratings are limited, the result of this insignificant coefficient on interaction between the levels of country- and firm-level ESG is not surprising. Based on prior studies (e.g., Arouri & Pijourlet, 2017; Dal Maso *et al.*, 2018; Guenster *et al.*, 2011), which reject the use of firm fixed effects, we believe that the results of our main regression models are sufficient to support our second hypothesis. Overall, the firm fixed effects results suggest that the inferences from our regression results (Table 3) are not driven by unobserved time-invariant firm characteristics, supporting our first hypothesis.

TABLE 5
FIRM FIXED EFFECT REGRESSION RESULTS

Dependent Variable	Systematic risk (Beta)			Idiosyncratic risk (Residuals)		
	Model 2	Model 3	Model 4	Model 6	Model 7	Model 8
FirmESG	-0.170***	-0.166***	-0.164***	0.020*	0.021*	0.021*
	(0.045)	(0.045)	(0.045)	(0.012)	(0.012)	(0.012)
CountryESG		-0.012**	-0.012**		-0.0021*	-0.0021
		(0.001)	(0.005)		(0.001)	(0.001)
Interaction			0.0059			-0.0000
			(0.006)			(0.0013)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	23,579	23,579	23,579	23,579	23,579	23,579
R-squared	0.6200	0.6202	0.6202	0.7790	0.7790	0.7790

Notes: This table displays the results of firm fixed effect regressions. Except that ADR and industry dummies are not included, all other control variables are the same as in our baseline model (Table 3) but not reported. The numbers in parentheses are Heteroskedasticity consistent standard errors.
* $p < .1$
** $p < .05$
*** $p < .01$

CONCLUSION AND DISCUSSION

Using a large cross-section of firms listed in Nasdaq stock exchange during a twelve-year period (2006-2018), we examine the relationship between firm CSR disclosure, national CSR rating of the firm's home country and firm risk. Specifically, we argue that firm CSR disclosure has opposing effects on systematic risk and idiosyncratic risk. We hypothesize that firm CSR disclosure is negatively associated with systematic risk but positively associated with idiosyncratic risk. In addition, we argue that the national CSR rating of a firm's home country influences the extent to which investors value the firm's CSR engagement and hypothesize that the national CSR rating of a firm's home country positively moderates the relationship between the firm's CSR disclosure and both types of firm risk. We find supporting evidence for our hypotheses.

By highlighting the differential impact of firm CSR disclosure on firm risk and examining the moderating effect of national CSR rating, this study uniquely contributes to the management and the CSR strategy literature in several ways. First, this study contributes to the literature by illustrating the different effects of firm CSR disclosure on two types of firm financial risk. While some studies (e.g. Amit & Wernerfelt, 1990; Chatterjee *et al.*, 1999) suggest that idiosyncratic risk is less relevant to investors because investors can reduce such risk by holding a diversified portfolio, idiosyncratic risk should not be ignored in studies exploring effects of factors that may shape investor perception toward a specific firm. Second,

this study fills an important gap in extant research by examining the moderating effect of national CSR rating on the CSR-firm risk relationship. Specifically, this study contributes to the literature by addressing two questions. Does the level of national CSR rating affect the CSR-risk relationship, and if these effects differ between systematic risk and idiosyncratic risk? The findings help strengthen our understanding of the CSR-firm risk relationship by showing that the extent to which investors value a firm's CSR engagement depends on which country the firm is from.

Our study has important implications for both investors and corporate managers. For investors, our results suggest higher firm-specific risk (or idiosyncratic risk) but lower market risk (or systematic risk) when individuals invest in more socially responsible stocks or reduce their holdings of socially irresponsible stocks. When making investment decisions, individuals should not only consider the impact of the level of firm CSR on the risk of their portfolios, but also, most importantly, the moderating effect of their home country's CSR rating on this CSR-risk relation. Regarding corporate managers, our findings indicate that the effectiveness of CSR as a differentiation strategy depends on the institutional environment. As CSR is institutionalized in a society, stakeholders tend to view CSR engagement more as a result of seeking legitimacy than intrinsic motive. In other words, managers of a firm headquartered in a country with an inherently high social reputation should work even harder to avoid socially irresponsible decisions, because stakeholders are likely to be less forgiving when the "psychological contract" built on prior superior CSR engagement is broken.

This study has several limitations that suggest several potentially fruitful future research directions. First, future research can deepen our analysis by investigating the relationship between each pillar of firm-level ESG (environmental, social, and governance) to provide a complementary perspective on whether each pillar of ESG has varying impacts on financial risk. Similarly, future researchers can explore the interaction effect of each pillar of firm-level ESG and different perspectives of country-level ESG (environmental, social, strategic governance, and economics). Second, future research could complement our study by expanding the sample period and size such as firms listed in NYSE stock exchange or US OTC market, due to the fact that we examine the impact of CSR on firm risk for a relatively small period of twelve years and relatively small sample of firms listed only on NASDAQ stock exchange. Considering the significant impact of the COVID-19 pandemic on both product and financial markets, it is worth examining whether and how the relationship between CSR engagement, firm risk, and the moderating effect of national ESG ratings differs in the pre-pandemic era and the post-pandemic era.

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