International Review of Financial Analysis 88 (2023) 102672

Contents lists available at ScienceDirect

International Review of Financial Analysis

journal homepage: www.elsevier.com/locate/irfa

Do shareholders punish or reward excessive CSR engagement? Moderating effect of cash flow and firm growth

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ARTICLE INFO

Keywords:
Excessive CSR
Firm value
Cash flow
Firm growth
Stakeholder theory
Financial slack theory

ABSTRACT

Although extensive past research has studied the connection between corporate social responsibility (CSR) and firm value, it has rarely discriminated between optimal and excessive CSR. Thus, we addressed this issue by examining whether shareholders punish or reward excessive CSR engagement through the moderating effect of cash flow and firm growth. We applied country–industry–year fixed-effects (FE) regression to a cross-country sample of 43,803 firm-year observations between 2002 and 2019. The findings show that while both optimal and excessive CSR increase firm value, optimal CSR has greater value relevance than excessive CSR for shareholders. However, although cash flow positively moderates the relationship between optimal and excessive CSR and firm value, firm growth negatively moderates this relationship. The findings are robust regarding alternative CSR proxies, industry-adjusted firm value measures, public governance indicators, and endogeneity concerns.

1. Introduction

It is vital to encourage firms to function in a manner that is compatible with social and environmental expectations, which can be achieved by fostering a commitment to sustainability (Murray, Sinclair, Power, & Gray, 2006). There is ongoing debate over whether good social or environmental practices provide companies with a competitive advantage or incur additional net costs (Glavas & Mish, 2015). This debate is of critical importance for firms because it has implications for building corporate image (Molina-Azorín, Claver-Cortés, Pereira-Moliner, & Tarí, 2009). Existing research, spanning several decades, on the connection between corporate social responsibility (CSR)[1] and firm value is inconclusive (see the recent literature reviews by Brooks and Oikonomou (2018), Friede, Busch, and Bassen (2015), and Huang, Sim, and Zhao (2020)), and thus it remains unclear whether stockholders gain or lose from CSR commitment (Asogwa et al., 2020; Ding, Ferreira, & Wongchoti, 2016; Li, Haider, Jin, & Yuan, 2019; Nguyen, Kecskés, & Mansi, 2020). CSR includes "actions that appear to further some social good, beyond the interests of the firm and that which is required by law" (McWilliams & Siegel, 2001, p. 117). The extant literature concentrates on a more tangible measure of CSR commitment (i.e., CSR expenditure) and its economic implications. For example, Bose, Saha, and Abeysekera (2020) documented a positive association between CSR expenditure and firm value—but only to a certain extent. In addition, the unexpected or abnormal components of CSR expenditure comprise value-relevant information. Similarly, Clarkson, Li, and Richardson (2004) indicated that environmental capital expenditure investment by low-polluting companies is associated with incremental financial gains. Gregory, Tharyan, and Whittaker (2014) argued that the availability of slack resources affects the amount of spending on CSR and drives CSR commitment. Their study showed that the market positively values CSR and that firms with greater CSR experience a higher-than-expected growth rate in their abnormal earnings. As a result, shareholders' reaction to beyond-optimal CSR commitment may depend on the availability and growth of the firm's financial resources.

The extant CSR literature has made little distinction between optimal and excessive CSR. In this study, we investigated whether shareholders punish or reward excessive CSR engagement using a cross-country

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[1] Upfront, we should clarify that we use CSR and environmental, social, and governance (ESG) interchangeably (Gillan et al., 2021). Following prior studies, we used environmental, social, and governance (ESG) scores of Thomson Reuters Eikon as a proxy of CSR (Gillan et al., 2021; Shahbaz et al., 2020; Uyar et al., 2023).

https://doi.org/10.1016/j.irfa.2023.102672
Received 1 November 2022; Received in revised form 3 March 2023; Accepted 17 April 2023
Available online 21 April 2023

sample of 43,803 firm-year observations between 2002 and 2019, drawing on two conflicting theories about the CSR–firm value nexus. On the one hand, stakeholder theory holds that firms engaging in excessive CSR activities receive support from a wide range of stakeholders (beyond shareholders) and have better financial outcomes (Freeman, 1984, 2010). On the other hand, agency theory claims that excessive CSR practices are value-destroying projects that exhaust firms' resources and cause agency conflicts between managers and stockholders (Jensen & Meckling, 1976). We argue that identifying the impact of CSR on firm value is a complex exercise that depends on firm-specific contingencies, such as cash flow and firm growth, which have been ignored in recent studies on excessive CSR (e.g., Bu, Chan, Choi, & Zhou, 2021; Jian & Lee, 2015; Naughton, Wang, & Yeung, 2019; Zhou, 2022). Financial slack theory asserts that companies' investments in discretionary CSR activities increase when cash is abundant (Cheng, Ioannou, & Serafeim, 2014; Lin, Ho, Ng, & Lee, 2019). Firms making investments with inadequate financial resources must deploy these resources effectively and thus usually avoid engaging in excessive CSR. Thus, we explored two channels through which the value relevance of excessive CSR could be impacted.

This study contributes to the previous literature on the CSR–firm value nexus, which, to date, remains inconclusive (Friede et al., 2015) and as such warrants deeper investigation. First, we examined the impact of CSR engagement on firm value by discriminating between optimal and excessive CSR engagement. Excessive CSR is CSR that goes beyond an optimal level and was measured using the residual value after estimating CSR proxies, regressed using firm financial and board characteristics[2] (Bu et al., 2021; Jian & Lee, 2015; Zhou, 2022). Thus, while optimal CSR engagement refers to CSR practices that are commensurate with firm financial and governance characteristics, excessive CSR engagement refers to CSR practices that are disproportionate to firm financial and governance characteristics. Firms should care about optimal and excessive CSR engagement as excessive investment, although pleasing to stakeholders, may diminish shareholder value by reducing profitability. While many studies have considered generic CSR engagement, excessive CSR engagement is an emerging topic on which only a few studies have been conducted so far (Bu et al., 2021; Jian & Lee, 2015; Zhou, 2022). Second, several recent studies have tested the factors that moderate the association between CSR performance and firm value. For instance, Buchanan, Cao, and Chen (2018) and Nguyen et al. (2020) examined the moderating effect of institutional investors, D'Amato and Falivena (2020) investigated the moderating role of firm size and age, and Bu et al. (2021) studied the moderating effect of inside directors on the CSR–firm value nexus. The present study expands the relevant literature by investigating the moderating effect of cash and firm growth on the relationship between excessive CSR and firm value, which may help firms adjust their CSR commitments beyond an optimal level based on cash availability.

The remainder of the paper is structured as follows. Section 2 presents the study hypotheses. Section 3 explains the research methodology and the variables, sample, and empirical models. Section 4 reports the findings, and Section 5 presents the conclusions and discusses the results and research implications.

2. Theoretical background and hypotheses

2.1. Excessive CSR and firm value: A stakeholder theory perspective

CSR reflects businesses' responsibility to society and various stakeholders (Wang, Tong, Takeuchi, & George, 2016). Hartman et al. (2007, p. 377) called CSR a "social license to operate," one which allows businesses to flourish in their communities. One strand of literature considers CSR engagement to enhance firm value and supports the notion of "doing well by doing good" (e.g., Buchanan et al., 2018; Dowell, Hart, & Yeung, 2000; Jiao, 2010; Krüger, 2015). Stakeholder theory argues that CSR enhances firm value because it builds a firm's reputation, demonstrates its goodwill toward external stakeholders (Brammer & Pavelin, 2006; Orlitzky, Schmidt, & Rynes, 2003; Porter & Kramer, 2006; Russo & Fouts, 1997), increases customer trust (Sen & Bhattacharya, 2001; Servaes & Tamayo, 2013), improves employee morale and productivity (Greening & Turban, 2000), and facilitates access to valuable resources (Cheng et al., 2014). Furthermore, firms that engage in socially and environmentally responsible activities receive higher valuations in financial markets (Kong, Liu, & Dai, 2014; Rodgers, Choy, & Guiral, 2013). CSR can maintain high stakeholder engagement (Shahbaz, Karaman, Kilic, & Uyar, 2020) and help reduce conflicts of interest between managers and non-investing stakeholders (Buchanan et al., 2018; Cui, Jo, & Na, 2018), thereby providing companies with competitive superiority over their rivals (Hasan, Kobeissi, Liu, & Wang, 2018) and increasing their value.

Recent literature has investigated the concept of "abnormal CSR" (e.g., Bu et al., 2021; Jian & Lee, 2015; Naughton et al., 2019; Zhou, 2022), suggesting the existence of excessive CSR (Zhou, 2022, p. 3). According to stakeholder theory, firms engaging in excessive CSR activities receive support from a wide range of stakeholders (beyond shareholders), including customers, employees, suppliers, investors, and communities, and have better financial outcomes (Freeman, 1984, 2010). Support from many stakeholders has a positive effect on firms' operations (Jian & Lee, 2015) and helps companies allocate abundant stakeholder funding appropriately (Lin et al., 2019), which in turn increases shareholder value.

CSR can be considered a critical source of legitimacy (Chiu & Sharfman, 2018) and a long-term investment that serves to meet stakeholders' demands (Chen, Zhou, & Zhu, 2019; Peloza, 2009). Chief executive officers (CEOs) play an essential role in the CSR process as they consider CSR to be a value-added activity (Chen et al., 2019; Ntim & Soobaroyen, 2013; Tang, Qian, Chen, & Shen, 2015). CEOs are responsible for satisfying the needs of all of the firm's stakeholders and are likely to face dismissal if they fail to develop and execute effective CSR strategies (Chiu & Sharfman, 2018). They also decide whether—and if so, how much—a firm should respond to stakeholders' demands (Manner, 2010). As a result, the positive relationship between excessive CSR and firm value could be due to the CEO's incentive to gain more support from stakeholders.

Moreover, although stakeholder theory can shape the decision-making process within the company it can also generate managerial conflict with regard to deciding how to best exploit the scarce capital resources of the firm (Bird, Hall, Momentè, & Reggiani, 2007; Mishra & Modi, 2013). Management must consider the impact of its decisions on a broad array of stakeholders and, at the same time, be aware of how these decisions can affect value maximization (Bird et al., 2007). Different types of CSR activities, such as technical CSR activities (e.g., product improvement) vs. institutional CSR activities (e.g., environmental protection), can have different effects on firm value. Previous literature shows that environmental protection represents an essential element in terms of the market stance toward CSR (Bird et al., 2007; Wahba, 2008), and it constitutes a vital concern for stakeholders concerning a firm's CSR efforts (Babiak & Trendafilova, 2011). Bird et al. (2007) evaluated a range of CSR activities to determine their impact on firm value and documented that the market attitude toward CSR activities seems to change over time and that employee relations and environmental protection have become of utmost importance in recent years. The authors also showed that firms gain reputational benefits and market rewards when devoting resources to a wide range of CSR activities. As a result, it could be that the type or totality of excessive CSR activities generates the positive impact on firm value. Consequently, based on a stakeholder

[2] During the determination of optimal and excessive CSR levels, we considered sectoral and periodic tendencies as well as the possibility that these levels could be driven by sectoral and periodic characteristics. Please see Section 3.3 for the calculation of optimal and excessive CSR.

theory view of CSR, we assumed that excessive CSR would maximize firm value. Given the foregoing discussion, we developed the first hypothesis, (H)1a:

H1a. Excessive CSR enhances firm value.

2.2. Excessive CSR and firm value: An agency theory perspective

According to agency theory, managers may overinvest in CSR to obtain self-serving benefits, such as building their reputations and social networks with stakeholders, besides increasing shareholder wealth (Bénabou & Tirole, 2010; Jensen & Meckling, 1976; Krüger, 2015; Masulis & Reza, 2015; Zhou, 2022). Findings from previous literature support the agency view of CSR. For example, Krüger (2015) showed that the stock market reacts negatively to CSR activities because they highlight agency problems. Borghesi, Houston, and Naranjo (2014) observed that CEOs with greater media coverage are likely to engage in CSR to fulfill their personal needs, such as reputation building and career development, and Bu et al. (2021) argued that CEOs engage in excessive CSR activities to enhance their reputations at the expense of stockholders' interests. Moreover, Masulis and Reza (2015) showed that managers tend to engage in corporate generosity to extract private benefits beyond generating shareholder wealth, which decreases firm value.

The above evidence suggests that excessive CSR engagement is perceived as an indicator of agency problems within a firm (Krüger, 2015; Masulis & Reza, 2015). Excessive CSR practices may be considered non-value-enhancing (Asogwa et al., 2020) or even value-destroying projects that exhaust firms' resources and cause agency conflicts between managers and stockholders (Jensen & Meckling, 1976). Thus, drawing on the agency view of CSR, it is likely that excessive CSR can destroy firm value. Given the foregoing discussion, we formulated H1b as follows:

H1b. Excessive CSR reduces firm value.

2.3. The moderating effect of cash flow

Companies tend to overinvest in strategic long-term activities when they have excess cash (Barnea & Rubin, 2010; Jensen, 1986; Zwiebel, 1996), and those with sufficient financial slack can promote engagement in strategic social and environmental activities (Cheng et al., 2014). Lin et al. (2019) argued that high levels of financial slack strengthen the positive relationship between CSR and financial performance. According to financial slack theory, companies with abundant financial resources are likely to pursue CSR projects because they have the privilege of operating and competing in an assertive and daring manner (Amato & Amato, 2011; Islam, Ghosh, & Khatun, 2021) and can afford the cost of such strategic investments (Azmi, Hassan, Houston, & Karim, 2021; Boso et al., 2017; Xiao, Wang, van Donk, & van der Vaart, 2018) without sacrificing economic benefits (Artiach, Lee, Nelson, & Walker, 2010).

The extant literature has argued that firms with slack financial resources have a greater ability to make CSR-related investments (e.g., Azmi et al., 2021; Cheng et al., 2014; Clarkson, Li, Richardson, & Vasvari, 2011; Lin et al., 2019; Orlitzky et al., 2003; Reverte, 2009) and has observed that financial slack is a key determinant of firms' engagement in CSR. Chin, Hambrick, and Treviño (2013) claimed that due to the voluntary nature of CSR activities, companies' decision to engage in CSR largely depends on excess cash availability, and Islam et al. (2021) showed that financial institutions with excessive financial resources are likely to have a greater CSR commitment than those without adequate financial resources. In a similar vein, an early study by McGuire, Schneeweis, and Branch (1990) classified CSR activities as discretionary expenses that rely on the availability of financial slack. Financial slack theory holds that companies' investments in discretionary CSR activities increase when cash is abundant (Cheng et al., 2014; Lin et al., 2019; Waddock & Graves, 1997). We posited that excessive CSR commitment beyond an optimal level would be more sensitive to cash flow because it requires a greater deployment of funds. Otherwise, it is difficult for managers to justify pursuing excessive CSR strategies due to the backlash that could arise from taking such an extreme action without abundant cash. Given the foregoing discussion, we expected that companies investing in excessive CSR to enhance firm value likely depend on the availability of cash financing and that shareholders value excessive CSR when firms generate extensive cash flow from their operations. Therefore, we proposed the second hypothesis as follows:

H2. Cash flow positively moderates the relationship between excessive CSR and firm value.

2.4. The moderating effect of firm growth

Firms at different life-cycle stages have varying levels of resources that determine their CSR involvement (McWilliams & Siegel, 2000; Russo & Fouts, 1997). Prior literature has shown that companies' maturity determines how resources and capabilities facilitate CSR activities. For example, Dickinson (2011) and Hasan and Habib (2017) suggested that mature firms have more excess resources than firms at other life-cycle stages, and Lin et al. (2019) argued that small firms have more limited resources and tend to deploy them for short-term activities while disadvantaging long-term strategic activities, such as CSR activities. It follows that growing firms are subject to greater market competition and must therefore utilize their resources to grow and build their image; hence, they are likely to endanger shareholder value by investing in socially responsible projects (Hasan & Habib, 2017). Moreover, firms in the survival stage are less able to meet the minimum level of CSR engagement (Campbell, 2007). Young firms are less inclined to engage in CSR projects because they have limited financial resources, and financially constrained firms are less likely to invest in CSR activities because such investments negatively affect their ability to grow over time (Campello, Graham, & Harvey, 2010; Cheng et al., 2014). In contrast, mature firms are large, distinct, wealthy, and better able to invest sufficiently in CSR (Dickinson, 2011; Hasan & Habib, 2017). Nevertheless, growing firms' excessive CSR engagement beyond an optimal level may generate considerable tension over the decision to allocate their financial resources to investment or excessive CSR, which is largely discretionary. Since shareholders prioritize growth and financial returns, they are highly likely to contest excessive CSR implementation during growth periods. Given the foregoing discussion, we assumed that growing firms would not engage in excessive CSR since they have inadequate financial resources, which should be utilized primarily for investment. Hence, we proposed the third hypothesis as follows:

H3. Firm growth negatively moderates the relationship between excessive CSR and firm value.

3. Research methodology

For this study, we incorporated various analytical approaches to examine the research sample, variables, and summary statistics, including the correlation coefficients. We conducted two phases of regression analysis to build the research models and underpin the empirical investigation. We used country–industry–year fixed-effects (FE) regression and moderation analysis to evaluate the research models. We also employed multiple approaches to check for robustness.

3.1. Variables

Mainly, following prior studies, we used environmental, social, and governance (ESG) scores of Thomson Reuters (TR) Eikon as a proxy of CSR (Gillan, Koch, & Starks, 2021; Shahbaz et al., 2020; Uyar, Abdelqader, & Kuzey, 2023). We prefer the ESG scoring provided by TR Eikon (aka Refinitiv; also, fka ASSET44) database due to its provision of

Table 1
List of variables.

Panel A	
ESG	An overall ESG score based on ESG strengths with ESG controversies overlaid
ES	The arithmetic average of environmental pillar and social pillar
ADV	Advertising expenditure/Net sales
CASH	Cash and cash equivalents/Total assets
EBITDA	Income before interest and tax plus depreciation and amortization/ Total assets
NPM	Net income/Net sales
BINDEPEND	Non-executive directors' ratio on board
DEBT	Total debt/Total assets
MB	Market capitalization/Total equity
RD	Research and development expenditure/Total assets
FSIZE	Total assets' natural logarithm
ATR	Net sales/Total assets
Panel B	
TOBINQ	The sum of market capitalization and total debt divided by total assets
TOBINQ-ADJ	TOBINQ minus the median of industry TOBINQ
CFLOW	Cash flow from operations/Total assets
INVESTMENT	Property plant and equipment growth percentage
BSIZE	Number of directors on board
BINDEPEND	Non-executive directors' ratio on board
BDIVERS	Female directors' ratio on board
CDUALITY	CEO duality takes 1 if board chair and CEO is the same person, 0 otherwise
FSIZE	Natural logarithm of total assets
ROA	Income before interest and tax/Total assets
LEVERAGE	Total liabilities/Total assets
CRATIO	Current assets/Current liabilities
FFLOAT	Free float percentage of shares
WGI	The average of six Word Governance Indicators (WGI), namely voice and accountability, government effectiveness, regulatory quality, political stability and absence of violence/terrorism, rule of law, and control of corruption. All six indicators and the average range from −2.5 to 2.5
ESG-pre	Predicted ESG score based on Eq. (1)
ESG-res	Residual ESG based on Eq. (1)
ESG-resq	The top quartile of residual ESG based on Eq. (1). The top quartile observations take 1, otherwise 0
ESG-resb	If residual ESG based on Eq. (1) is positive, it takes 1, otherwise 0
ES-pre	Predicted ES score based on Eq. (2)
ES-res	Residual ES based on Eq. (2)
ES-resq	The top quartile of residual ES based on Eq. (2). The top quartile observations take 1, otherwise 0
ES-resb	If residual ES based on Eq. (2) is positive, it takes 1, otherwise 0

This table reports the study's research variables, and their definitions, used in Phases 1 and 2. Phase 1 was the model for the estimation of optimal and excessive CSR, whereas Phase 2 was aimed at testing the main research hypotheses.

percentile scores based on a scale of 0–100, which better served the methodological approach deployed in our study. TR houses one of the most inclusive ESG databases in the industry, with >600 ESG metrics, of which 186 are used in ESG scoring methodology (Refinitiv, 2022). These metrics are collected from CSR/annual reports, company/NGO websites, stock exchange filings, news sources, etc., and are scrutinized to standardize the information and ensure it is comparable across peers (Ioannou & Serafeim, 2012; Refinitiv, 2022). The TR ESG data cover >85% of global market capitalization dating back to 2002. TR ESG scores are designed to impartially and openly assess a firm's relative ESG performance based on self-reported data. The score covers 10 main themes, including resource use, emissions, environmental innovation (constituting the environmental pillar score), human rights, workforce, product responsibility, community (establishing the social pillar score), and shareholders, management, and CSR strategy (forming the governance pillar score). The percentile scores are benchmarked against their peers in the same industry for the social and environmental pillars, and the country of incorporation for the governance pillar, and hence are not very sensitive to outliers (; Liu et al., 2022). TR tries to minimize firm

Table 2
Sample distribution.

Variable	Category	Frequency	Percent
Panel A			
Sector	Basic Materials	5766	13.16
	Consumer Cyclicals	8299	18.95
	Consumer Non-Cyclicals	3905	8.91
	Energy	3736	8.53
	Healthcare	3937	8.99
	Industrials	9314	21.26
	Technology	5043	11.51
	Telecommunications Services	1356	3.10
	Utilities	2447	5.59
	Total	*43,803*	*100.00*
Panel B			
Year	2002	315	0.72
	2003	507	1.16
	2004	852	1.95
	2005	1190	2.72
	2006	1272	2.90
	2007	1376	3.14
	2008	1566	3.58
	2009	1870	4.27
	2010	2190	5.00
	2011	2479	5.66
	2012	2608	5.95
	2013	2693	6.15
	2014	2827	6.45
	2015	3264	7.45
	2016	3878	8.85
	2017	4407	10.06
	2018	4944	11.29
	2019	5565	12.70
	Total	*43,803*	*100.00*

Panel C

	Country	Unique firms	Percent	Data points	Percent
1	Argentina	46	0.79	109	0.25
2	Australia	308	5.28	2534	5.78
3	Austria	23	0.39	176	0.40
4	Belgium	37	0.63	305	0.70
5	Brazil	78	1.34	572	1.31
6	Canada	245	4.20	2192	5.00
7	Chile	33	0.57	228	0.52
8	China	373	6.39	1139	2.60
9	Colombia	15	0.26	79	0.18
10	Denmark	37	0.63	362	0.83
11	Finland	32	0.55	380	0.87
12	France	137	2.35	1244	2.84
13	Germany	152	2.60	1175	2.68
14	Greece	17	0.29	136	0.31
15	Hong Kong	187	3.20	1472	3.36
16	India	112	1.92	721	1.65
17	Indonesia	33	0.57	260	0.59
18	Italy	71	1.22	475	1.08
19	Japan	375	6.43	5122	11.69
20	Korea; Republic (S. Korea)	117	2.00	915	2.09
21	Malaysia	49	0.84	394	0.90
22	Mexico	38	0.65	276	0.63
23	Netherlands	45	0.77	414	0.95
24	New Zealand	42	0.72	287	0.66
25	Norway	54	0.93	369	0.84
26	Peru	26	0.45	90	0.21
27	Philippines	16	0.27	140	0.32
28	Poland	30	0.51	176	0.40
29	Portugal	15	0.26	120	0.27
30	Russia	35	0.60	316	0.72
31	Saudi Arabia	20	0.34	83	0.19
32	Singapore	32	0.55	405	0.92
33	South Africa	89	1.53	738	1.68
34	Spain	56	0.96	487	1.11

(*continued on next page*)

Table 2 (*continued*)

Panel C					
	Country	Unique firms	Percent	Data points	Percent
35	Sweden	110	1.88	729	1.66
36	Switzerland	98	1.68	742	1.69
37	Taiwan	128	2.19	1045	2.39
38	Thailand	33	0.57	244	0.56
39	Turkey	43	0.74	191	0.44
40	United Kingdom	312	5.35	3224	7.36
41	United States of America	2137	36.62	13,737	31.36
	Total	5836	100.00	43,803	100.00

This table reports the distribution of the sample across sectors, between 2002 and 2019, and across countries.

Table 3
Summary statistics.

Panel A: Phase 1					
Variable	Obs.	Mean	Std. Dev.	Min	Max
ESG	43,803	39.70	19.40	0.12	94.09
ENVSOC	43,803	37.16	24.27	0.03	97.46
ADV	43,803	0.01	0.03	0.00	0.20
CASH	43,803	0.10	0.10	0.00	0.59
EBITDA	43,803	0.12	0.10	−0.34	0.42
NPM	43,803	0.01	0.86	−6.13	3.63
BDIVERS	43,803	73.28	21.77	0.00	100.00
DEBT	43,803	0.24	0.17	0.00	0.83
MB	43,803	3.43	4.16	0.28	27.20
RD	43,803	0.02	0.04	0.00	0.27
FSIZE	43,803	22.15	1.61	11.25	27.41
ATR	43,803	0.96	1.00	0.00	7.32

Panel B: Phase 2					
Variable	Obs.	Mean	Std. Dev.	Min	Max
TOBINQ	43,803	1.64	1.48	0.08	9.11
TOBINQ-ADJ	43,803	0.39	1.39	−1.29	7.59
CFLOW	43,803	0.08	0.07	−0.37	0.35
INVESTMENT	37,987	0.14	0.48	−0.61	3.45
BSIZE	43,803	10.03	3.36	4.00	21.00
BINDEPEND	43,803	73.28	21.77	0.00	100.00
BDIVERS	43,803	13.48	12.52	0.00	100.00
CDUALITY	43,803	0.39	0.49	0.00	1.00
FSIZE	43,803	22.15	1.61	11.25	27.41
ROA	43,803	0.08	0.10	−0.37	0.36
LEVERAGE	43,803	0.54	0.20	0.05	1.00
CRATIO	43,803	2.03	1.86	0.25	12.90
FFLOAT	43,803	77.17	24.73	0.00	100.00
WGI	43,803	1.12	0.59	−0.83	1.97
ESG-pre	43,803	39.70	9.96	−28.00	77.86
ESG-res	43,803	0.00	16.65	−63.22	63.08
ESG-resq	43,803	0.28	0.45	0.00	1.00
ESG-resb	43,803	0.49	0.50	0.00	1.00

This table reports the descriptive statistics of the research variables used in Phases 1 and 2. Obs.: Number of observations.

transparency and size biases and takes into account the most material industry metrics. TR's scoring methodology does not surmise "good" performance but rather calculates relative performance (based on industry and country of incorporation) to facilitate related analyses within rival groups (Dyck, Lins, Roth, & Wagner, 2019; Refinitiv, 2022). The TR ESG data have a reputation for diligence and trustworthiness (Stellner, Klein, & Zwergel, 2015) and also the standardized scores they offer (Banerjee, Gupta, & Mudalige, 2020). Although Bloomberg and Kinder, Lydenberg, and Domini Research & Analytics (KLD) also provide ESG data, Bloomberg's ESG proxy is commonly used for CSR "disclosure," not "performance" (Hamrouni, Uyar, & Boussaada, 2019), and KLD's ESG proxy is typically used for dichotomous scoring (Halbritter &

Table 4
Correlation analysis.

	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	TOBINQ	1														
2	TOBINQ-ADJ	0.966*	1													
3	CFLOW	0.141*	0.184*	1												
4	INVESTMENT	0.164*	0.131*	−0.109*	1											
5	BSIZE	−0.186*	−0.163*	0.018*	−0.092*	1										
6	BINDEPEND	0.066*	0.065*	0.022*	0.038*	−0.040*	1									
7	BDIVERS	0.056*	0.039*	0.049*	0.062*	0.007	0.318*	1								
8	CDUALITY	0.030*	0.019*	0.031*	0.001	0.062*	−0.018*	−0.022*	1							
9	FSIZE	−0.360*	−0.329*	0.079*	−0.106*	0.514*	0.014*	0.025*	0.113*	1						
10	ROA	0.255*	0.296*	0.627*	−0.080*	0.035*	0.044*	0.052*	0.041*	0.109*	1					
11	LEVERAGE	−0.264*	−0.229*	−0.016*	−0.023*	0.234*	0.114*	0.113*	0.028*	0.391*	−0.033*	1				
12	CRATIO	0.260*	0.212*	−0.185*	0.072*	−0.210*	−0.042*	−0.078*	0.001	−0.364*	−0.180*	−0.574*	1			
13	FFLOAT	0.002	−0.022*	−0.028*	0.018*	−0.054*	0.057*	0.105*	0.137*	0.002	−0.020*	0.025*	0.047*	1		
14	ESG-pre	−0.172*	−0.160*	0.190*	−0.057*	0.386*	0.271*	0.224*	0.081*	0.827*	0.221*	0.289*	−0.289*	0	1	
15	ESG-res	−0.022*	−0.023*	0.003	−0.061*	0.053*	0	0.170*	−0.092*	0	−0.013*	0.052*	−0.047*	0.070*	0	1

This table reports the correlation analysis of the research variables. * $p < 0.10$.

Table 5
Excessive CSR and firm value.

	(1)	(2)	(3)	(4)
Independent variables	TOBINQ	TOBINQ	TOBINQ	TOBINQ
ESG-pre	0.17***			
	(59.30)			
ESG-res		0.00095**		
		(2.55)		
ESG-resq			0.042***	
			(3.16)	
ESG-resb				0.036***
				(2.95)
BSIZE	0.014***	0.019***	0.019***	0.019***
	(6.42)	(8.52)	(8.55)	(8.50)
BINDEPEND	−0.018***	0.00024	0.00025	0.00026
	(−35.21)	(0.57)	(0.59)	(0.60)
BDIVERS	0.0031***	0.0034***	0.0034***	0.0034***
	(5.57)	(5.93)	(5.99)	(5.96)
CDUALITY	0.023*	0.034**	0.034**	0.034**
	(1.86)	(2.56)	(2.57)	(2.57)
FSIZE	−1.30***	−0.31***	−0.31***	−0.31***
	(−74.65)	(−62.17)	(−62.33)	(−62.30)
ROA	2.04***	5.15***	5.15***	5.15***
	(24.88)	(78.93)	(78.94)	(78.94)
LEVERAGE	0.30***	−0.19***	−0.19***	−0.19***
	(7.88)	(−4.89)	(−4.89)	(−4.90)
CRATIO	0.12***	0.11***	0.11***	0.11***
	(31.20)	(27.27)	(27.26)	(27.25)
FFLOAT	−0.0021***	−0.0016***	−0.0016***	−0.0016***
	(−7.16)	(−5.35)	(−5.36)	(−5.35)
Constant	24.3***	6.12***	6.13***	6.11***
	(70.31)	(36.96)	(37.00)	(36.94)
Country FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	43,803	43,803	43,803	43,803
Adj. R^2	0.408	0.360	0.360	0.360
F-stat.	403.42***	330.13***	330.20***	330.17***

This table reports the association of optimal and excessive CSR with firm value by controlling country–industry–year FE. TOBINQ is market capitalization plus total debt over total assets. The excessive CSR proxies generated from ESG are ESG-res (residual ESG based on Eq. (1), which is a continuous variable), ESG-resq (observations obtained from the top quartile of residual ESG based on Eq. (1) take 1, otherwise 0), and ESG-resb (if residual ESG based on Eq. (1) is positive, it takes 1, otherwise 0). ESG-pre is the predicted ESG score based on Eq. (1), which is optimal CSR level. All variables are defined in Table 1; *t*-statistics are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. FE: Fixed-effect.

Table 6
Moderating role of CFLOW.

	(1)	(2)	(3)	(4)
Independent variables	TOBINQ	TOBINQ	TOBINQ	TOBINQ
ESG-pre	0.13***			
	(42.35)			
CFLOW	−7.70***	0.39***	−0.070	0.19
	(−30.87)	(3.53)	(−0.59)	(1.40)
ESG-pre*CFLOW	0.23***			
	(35.24)			
ESG-res		−0.00056		
		(−0.92)		
ESG-res*CFLOW		0.017***		
		(3.11)		
ESG-resq			−0.12***	
			(−5.50)	
ESG-resq*CFLOW			1.86***	
			(9.67)	
ESG-resb				0.0018
				(0.10)
ESG-resb*CFLOW				0.41**
				(2.49)
BSIZE	0.012***	0.019***	0.019***	0.019***
	(5.78)	(8.51)	(8.53)	(8.49)
BINDEPEND	−0.016***	0.00024	0.00026	0.00024
	(−30.74)	(0.55)	(0.61)	(0.57)
BDIVERS	0.0025***	0.0034***	0.0033***	0.0034***
	(4.59)	(5.88)	(5.80)	(5.93)
CDUALITY	0.023*	0.032**	0.032**	0.032**
	(1.88)	(2.44)	(2.46)	(2.45)
FSIZE	−1.17***	−0.31***	−0.31***	−0.31***
	(−66.18)	(−62.26)	(−62.51)	(−62.36)
ROA	2.47***	4.97***	4.98***	4.97***
	(26.12)	(60.59)	(60.81)	(60.64)
LEVERAGE	0.26***	−0.18***	−0.18***	−0.18***
	(7.05)	(−4.76)	(−4.83)	(−4.74)
CRATIO	0.11***	0.11***	0.11***	0.11***
	(27.76)	(27.49)	(27.23)	(27.44)
FFLOAT	−0.0020***	−0.0016***	−0.0016***	−0.0016***
	(−6.83)	(−5.34)	(−5.32)	(−5.36)
Constant	22.5***	6.11***	6.16***	6.12***
	(65.29)	(36.92)	(37.22)	(36.94)
Country FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	43,803	43,803	43,803	43,803
Adj. R^2	0.424	0.361	0.362	0.361
F-stat.	420.39***	321.99***	323.76***	321.97***

This table reports the moderating role of CFLOW between optimal and excessive CSR with firm value by controlling country–industry–year FE. CFLOW is cash flow from operations/total assets. The excessive CSR proxies generated from ESG are ESG-res (residual ESG based on Eq. (1), which is a continuous variable), ESG-resq (observations obtained from the top quartile of residual ESG based on Eq. (1) take 1, otherwise 0), and ESG-resb (if residual ESG based on Eq. (1) is positive, it takes 1, otherwise 0). ESG-pre is the predicted ESG score based on Eq. (1), which is optimal CSR level. All variables are defined in Table 1; *t*-statistics are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. FE: Fixed-effect.

Dorfleitner, 2015).

We selected two types of research variables: some were used in Phase 1 to determine optimal and excessive CSR, and others were used for the main research model in Phase 2 for hypothesis testing. According to previous studies (Bu et al., 2021; Jian & Lee, 2015; Zhou, 2022), the variables used in Phase 1 were calculated based on ESG strengths and weaknesses (ESG), the average of the environmental and social pillars (ES), advertising expenditure (ADV), cash and cash equivalents (CASH), income before interest and tax plus depreciation and amortization (EBITDA), net profit margin (NPM), board independence (BINDEPEND), financial leverage (DEBT), market to book value (MB), research and development expenditure (RD), firm size (FSIZE), and asset turnover (ATR). In Phase 1, we regressed ESG on firm characteristics to estimate optimal and excessive ESG levels based on Eq. (1) (please see Section 3.3).

In Phase 2, we used two sets of excessive CSR proxies generated from ESG and ES. Whereas the former was used for the baseline analysis, the latter was employed for the robustness tests. The excessive CSR proxies generated from ESG were the residual ESG based on Eq. (1), which was a continuous variable (ESG-res); observations obtained from the top quartile of the residual ESG based on Eq. (1) (ESG-resq), which took the value of 1 or 0 otherwise; and the residual ESG based on Eq. (1) (ESG-resb), which took the value of 1 if positive or 0 otherwise (Bu et al., 2021; Jian & Lee, 2015; Zhou, 2022). ESG-pre was the predicted ESG score based on Eq. (1), indicating the optimal CSR level. The proxies generated from ES were ES-res, ES-resq, ES-resb, and ES-pre, like those generated from ESG.

To measure firm value, we used two proxies: the sum of market capitalization and total debt divided by total assets (TOBINQ), and the adjusted Tobin's Q of the firm minus the median of the industry Tobin's Q (TOBINQ-ADJ). Whereas the former was used for the baseline analysis, the latter (i.e., industry-adjusted) was used for the robustness test to alleviate sectoral variations in the firm TOBINQ calculation (Ting, 2021; Uyar, Pizzi, Caputo, Kuzey, & Karaman, 2022; Yu, Guo, & Luu, 2018).

Table 7
Moderating role INVESTMENT.

	(1)	(2)	(3)	(4)
Independent variables	TOBINQ	TOBINQ	TOBINQ	TOBINQ
ESG-pre	0.17***			
	(56.83)			
INVESTMENT	0.69***	0.34***	0.37***	0.37***
	(17.01)	(27.30)	(27.08)	(23.31)
ESG-pre*INVESTMENT	−0.0096***			
	(−9.03)			
ESG-res		0.0018***		
		(4.68)		
ESG-res*INVESTMENT		−0.0026***		
		(−3.50)		
ESG-resq			0.070***	
			(5.20)	
ESG-resq*INVESTMENT			−0.14***	
			(−4.94)	
ESG-resb				0.060***
				(4.86)
ESG-resb*INVESTMENT				−0.063***
				(−2.68)
BSIZE	0.016***	0.021***	0.021***	0.021***
	(7.37)	(9.47)	(9.50)	(9.42)
BINDEPEND	−0.017***	0.00053	0.00056	0.00055
	(−32.82)	(1.23)	(1.30)	(1.29)
BDIVERS	0.0027***	0.0030***	0.0031***	0.0030***
	(4.98)	(5.19)	(5.33)	(5.20)
CDUALITY	0.026**	0.037***	0.038***	0.037***
	(2.11)	(2.88)	(2.93)	(2.89)
FSIZE	−1.22***	−0.27***	−0.27***	−0.27***
	(−69.32)	(−53.81)	(−54.00)	(−53.95)
ROA	2.86***	5.90***	5.91***	5.90***
	(33.90)	(87.88)	(87.96)	(87.90)
LEVERAGE	0.32***	−0.16***	−0.16***	−0.16***
	(8.57)	(−4.10)	(−4.11)	(−4.11)
CRATIO	0.12***	0.10***	0.10***	0.10***
	(29.18)	(25.23)	(25.17)	(25.18)
FFLOAT	−0.0016***	−0.0012***	−0.0012***	−0.0012***
	(−5.54)	(−4.00)	(−3.94)	(−3.96)
Constant	21.5***	4.17***	4.17***	4.14***
	(43.65)	(10.43)	(10.44)	(10.37)
Country FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	37,987	37,987	37,987	37,987
Adj. R^2	0.438	0.389	0.390	0.389
F-stat.	385.09***	315.58***	315.88***	315.54***

This table reports the moderating role of INVESTMENT between optimal and excessive CSR with firm value by controlling country–industry–year FE. INVESTMENT is property plant and equipment growth percentage. The excessive CSR proxies generated from ESG are ESG-res (residual ESG based on Eq. (1), which is a continuous variable), ESG-resq (observations obtained from the top quartile of residual ESG based on Eq. (1) take 1, otherwise 0), and ESG-resb (if residual ESG based on Eq. (1) is positive, it takes 1, otherwise 0). ESG-pre is the predicted ESG score based on Eq. (1), which is optimal CSR level. All variables are defined in Table 1; *t*-statistics are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. FE: Fixed-effect.

We employed two moderating variables—cash flow (CFLOW) and a firm growth proxy (INVESTMENT). CFLOW was proxied by cash flow from operations scaled by total assets (Benkraiem, Lakhal, & Zopounidis, 2020; Clarkson, Gao, & Herbohn, 2020), and INVESTMENT was proxied by property, plant, and equipment growth percentage (Benlemlih & Bitar, 2018; Shahzad, Rehman, Nawaz, & Nawab, 2018).

According to previous studies (Bu et al., 2021; Jian & Lee, 2015; Uyar, Pizzi, et al., 2022; Zhou, 2022), we integrated a battery of control variables that were likely to affect excessive CSR engagement and firm value: board size (BSIZE), board independence (BINDEPEND), board gender diversity (BDIVERS), and CEO duality (CDUALITY) controlled for governance characteristics, whereas firm size (FSIZE), return on assets (ROA), leverage ratio (LEVERAGE), and current ratio (CRATIO) controlled for financial characteristics. Finally, free float (FFLOAT) and the Worldwide Governance Indicators (WGI) controlled for ownership structure and public governance, respectively.

The list of variables and their definitions used in Phase 1 and Phase 2 are presented in Panels A and B of Table 1, respectively.

3.2. Sample

The research was based on a cross-country, cross-industry sample of 43,803 firm-year observations between 2002 and 2019. We retrieved the data from the TR Eikon database and subjected the sample to various purification and data preprocessing phases. This was a crucial step before testing the research hypotheses (Hair Jr, Black, Babin, & Anderson, 2019). The research sample included observations from non-financial sectors and countries that included at least 10 firms. Initially, we cleaned the raw data, transferred them to the analysis software, and prepared them for the forthcoming analyses. The preliminary descriptive statistics showed that TOBINQ, TOBINQ-ADJ, CFLOW, INVESTMENT, BSIZE, ROA, LEVERAGE, and CRATIO had large variability around mean values with heavy skewness. Therefore, we winsorized these variables at the 1% level of the two tails. The values at both ends were replaced with winsorized counterpart values (Cox, 2006). Next, we examined multivariate outliers using the minimum covariance determinant approach (Verardi & Dehon, 2010), which can make the

Table 8
Alternative dependent variable (Table 5).

Robustness Checks				
	(1)	(2)	(3)	(4)
Independent variables	TOBINQ-ADJ	TOBINQ-ADJ	TOBINQ-ADJ	TOBINQ-ADJ
ESG-pre	0.17*** (58.91)			
ESG-res		0.00086** (2.33)		
ESG-resq			0.039*** (2.95)	
ESG-resb				0.033*** (2.71)
Controls	Included	Included	Included	Included
Country FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	43,803	43,803	43,803	43,803
Adj. R^2	0.334	0.281	0.282	0.282
F-stat.	294.21***	229.80***	229.86***	229.84***

This table reports the association of optimal and excessive CSR with industry-adjusted firm value by controlling country–industry–year effect. TOBINQ-ADJ is TOBINQ minus the median of industry TOBINQ, where TOBINQ is market capitalization plus total debt over total assets. The excessive CSR proxies generated from ESG are ESG-res (residual ESG based on Eq. (1), which is a continuous variable), ESG-resq (observations obtained from the top quartile of residual ESG based on Eq. (1) take 1, otherwise 0), and ESG-resb (if residual ESG based on Eq. (1) is positive, it takes 1, otherwise 0). ESG-pre is the predicted ESG score based on Eq. (1), which is optimal CSR level; *t*-statistics are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. FE: Fixed-effect.

Mahalanobis distance more robust (Verardi & Dehon, 2010). Based on the multivariate outlier detection analysis, we removed from the analysis 19 records that were significant multivariate outliers. Moreover, we checked for missing values in the research sample. The initial summary statistics showed that the ratios of the missing values ranged between 0.19% (FSIZE) and 2.90% (BINDEPEND).[3] The ratios of the missing values were <5% and were therefore deemed inconsequential (Schafer, 1999). They were also significantly <10%, which was unlikely to cause any estimation bias during the analysis (Bennett, 2001). Although the ratios of the missing values for the indicated variables were relatively small and caused no estimation bias, we imputed these variables using the Markov chain Monte Carlo approach. However, INVESTMENT had a large ratio for missing values due to calculations of the growth rate; therefore, we did not impute INVESTMENT.

The research sample initially included 59,192 observations. However, we excluded the financial sector (13,333 observations), countries with fewer than 10 firms (445 observations), non-available observations from Phase 1 (1592 observations), and significant multivariate outliers (19 observations) from the initial sample. The final sample size comprised 43,803 records for subsequent analysis (Table 2, Panel A).

We then examined the distribution of the sample based on sector, which ranged between 3.1% (telecommunications services) and 21.26% (industrial)[4] (see Table 2, Panel A). The distribution of the sample based on year ranged between 0.72% for 2002 and 12.70% for 2019 (Table 2, Panel B). Finally, we examined the country-level sample distribution, which yielded 41 countries, 5836 unique firms, and 43,803 data points (Table 2, Panel C).

[3] The ratios of the missing values were FSIZE 0.19%, LEVERAGE 0.19%, WGI 0.34%, BSIZE 0.42%, ROA 0.57%, TOBINQ 0.78%, TOBINQ-ADJ 0.78%, FFLOAT 0.99%, CRATIO 1.32%, BDIVERS 2.90%, and BINDEPEND 2.90%,

[4] The sample distribution based on sector was divided into industrial 21.26%, consumer cyclicals 18.95%, basic materials 13.16%, technology 11.51%, health care 8.99%, consumer non-cyclicals 8.91%, energy 8.53%, utilities 5.59%, and telecommunications services 3.10%. We excluded the financial sector because its financial characteristics and binding regulations are highly distinctive.

Table 9
Alternative dependent variable (Table 6).

	(1)	(2)	(3)	(4)
Independent variables	TOBINQ-ADJ	TOBINQ-ADJ	TOBINQ-ADJ	TOBINQ-ADJ
ESG-pre	0.13*** (42.19)			
CFLOW	−7.31*** (−29.49)	0.57*** (5.29)	0.13 (1.12)	0.39*** (2.91)
ESG-pre*CFLOW	0.23*** (34.58)			
ESG-res		−0.00062 (−1.02)		
ESG-res*CFLOW		0.017*** (3.05)		
ESG-resq			−0.11*** (−5.47)	
ESG-resq*CFLOW			1.80*** (9.44)	
ESG-resb				0.00072 (0.04)
ESG-resb*CFLOW				0.38** (2.35)
Controls	Included	Included	Included	Included
Country FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	43,803	43,803	43,803	43,803
Adj. R^2	0.352	0.282	0.283	0.282
F-stat.	310.35***	224.50***	226.00***	224.47***

This table reports the moderating role of CFLOW between optimal and excessive CSR with industry-adjusted firm value by controlling country–industry–year effect. TOBINQ-ADJ is TOBINQ minus the median of industry TOBINQ, where TOBINQ is market capitalization plus total debt over total assets. CFLOW is cash flow from operations/total assets. The excessive CSR proxies generated from ESG are ESG-res (residual ESG based on Eq. (1), which is a continuous variable), ESG-resq (observations obtained from the top quartile of residual ESG based on Eq. (1) take 1, otherwise 0), and ESG-resb (if residual ESG based on Eq. (1) is positive, it takes 1, otherwise 0). ESG-pre is the predicted ESG score based on Eq. (1), which is optimal CSR level; *t*-statistics are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. FE: Fixed-effect.

3.3. Formulations of the research models

We formulated the baseline research models in two phases. We generated the independent testing variables of interest after performing a regression analysis in the first phase. We then included the generated variables based on the predicted residuals from the first phase to formulate the baseline research models in the second phase.

The first phase—generating alternative testing variables: The initial formulation of the model to generate new variables for the subsequent analyses is presented in Eq. (1).

$$\begin{aligned} ESG_i = {} & \beta_0 + \beta_1.ADV_i + \beta_2.CASH_i + \beta_3.EBITDA_i + \beta_4.NPM_i \\ & + \beta_5.BINDEPEND_i + \beta_6.DEBT_i + \beta_7.MB_i + \beta_8.RD_i + \beta_9.FSIZE_i \\ & + \beta_{10}.ATR_i + \text{Industry FE} + \text{Year FE} + \varepsilon_i \end{aligned} \quad (1)$$

We performed an industry-year FE regression analysis to generate the predicted (fitted) and residual values for ESG. While the predicted ESG values captured optimal CSR, the residuals captured excessive CSR engagement. These predicted and residual values were incorporated as independent testing variables in the baseline and robustness analyses (i.e., ESG-pre, ESG-res, ESG-resq, and ESG-resb; please see the descriptions in Table 1).

The first generated variable was used to indicate predicted values of ESG (ESG-pre). The second generated variable was ESG-res, which was employed to obtain the continuous residual values generated from Eq.

Table 10
Alternative dependent variable (Table 7).

	(1)	(2)	(3)	(4)
Independent variables	TOBINQ-ADJ	TOBINQ-ADJ	TOBINQ-ADJ	TOBINQ-ADJ
ESG-pre	0.17***			
	(56.41)			
INVESTMENT	0.64***	0.31***	0.35***	0.34***
	(15.84)	(25.27)	(25.18)	(21.78)
ESG-pre*INVESTMENT	−0.0090***			
	(−8.46)			
ESG-res		0.0016***		
		(4.35)		
ESG-res*INVESTMENT		−0.0027***		
		(−3.60)		
ESG-resq			0.064***	
			(4.84)	
ESG-resq*INVESTMENT			−0.13***	
			(−4.74)	
ESG-resb				0.056***
				(4.57)
ESG-resb*INVESTMENT				−0.065***
				(−2.76)
Controls	Included	Included	Included	Included
Country FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	37,987	37,987	37,987	37,987
Adj. R^2	0.368	0.314	0.314	0.314
F-stat.	287.70***	226.84***	227.06***	226.80***

This table reports the moderating role of INVESTMENT between optimal and excessive CSR with industry-adjusted firm value by controlling country–industry–year FE. TOBINQ-ADJ is TOBINQ minus the median of industry TOBINQ, where TOBINQ is market capitalization plus total debt over total assets. INVESTMENT is property plant and equipment growth percentage. The excessive CSR proxies generated from ESG are ESG-res (residual ESG based on Eq. (1), which is a continuous variable), ESG-resq (observations obtained from the top quartile of residual ESG based on Eq. (1) take 1, otherwise 0), and ESG-resb (if residual ESG based on Eq. (1) is positive, it takes 1, otherwise 0). ESG-pre is the predicted ESG score based on Eq. (1), which is optimal CSR level; *t*-statistics are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. FE: Fixed-effect.

Table 11
WGI as the additional control variable (Table 5).

	(1)	(2)	(3)	(4)
Independent variables	TOBINQ	TOBINQ	TOBINQ	TOBINQ
ESG-pre	0.17***			
	(59.32)			
ESG-res		0.00099***		
		(2.64)		
ESG-resq			0.043***	
			(3.20)	
ESG-resb				0.037***
				(3.01)
Controls	Included	Included	Included	Included
Country FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	43,803	43,803	43,803	43,803
Adj. R^2	0.408	0.360	0.361	0.361
F-stat.	398.23***	325.86***	325.93***	325.90***

This table reports the association of optimal and excessive CSR with firm value by including WGI as an additional control variable. TOBINQ is market capitalization plus total debt over total assets. The excessive CSR proxies generated from ESG are ESG-res (residual ESG based on Eq. (1), which is a continuous variable), ESG-resq (observations obtained from the top quartile of residual ESG based on Eq. (1) take 1, otherwise 0), and ESG-resb (if residual ESG based on Eq. (1) is positive, it takes 1, otherwise 0). ESG-pre is the predicted ESG score based on Eq. (1), which is optimal CSR level; *t*-statistics are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. FE: Fixed-effect.

(1). The third generated variable was ESG-resq, which was a binary variable generated from the top quartile of the residual values. We categorized the top quartile as excessive ESG and assigned a value of 1, or 0 otherwise, for the ESG-resq variable. The fourth generated variable was ESG-resb, which was generated as a binary variable with 1 assigned for the positive residuals, representing excessive ESG, and 0 otherwise.

To perform the robustness checks after the main analyses, we generated four new alternative variables. We generated ES-pre, ES-res, ES-resq, and ES-resb (please see the descriptions in Table 1) by modifying Eq. (1) and re-formulating it as Eq. (2). Hence, ESG was replaced with ES as the alternative dependent variable in Eq. (2). Similarly, ES-pre was the predicted value of ES, and ES-res was the continuous residual value in Eq. (2). ES-resq was a binary variable generated using the top quartile of the residual values. We categorized the top quartile as excessive ES and assigned a value of 1, or 0 otherwise. We generated ES-resb as a binary variable, with 1 assigned for the positive residuals, representing excessive ES, and 0 otherwise.

$$\begin{aligned} ES_i =& \beta_0 + \beta_1.ADV_i + \beta_2.CASH_i + \beta_3.EBITDA_i + \beta_4.NPM_i \\ &+ \beta_5.BINDEPEND_i + \beta_6.DEBT_i + \beta_7.MB_i + \beta_8.RD_i + \beta_9.FSIZE_i \\ &+ \beta_{10}.ATR_i + \text{Industry FE} + \text{Year FE} + \varepsilon_i \end{aligned} \quad (2)$$

3.3.1. The second phase—Baseline models

We included the variables generated in the first phase in the baseline research models in the second phase. We formulated the country–industry–year FE regression models using Eqs. (3), (4), (5), and (6) below. Country–industry–year FE can alleviate any time-invariant endogeneity concerns (Feenstra, Hong, Ma, & Spencer, 2013; Nunn, 2007; Rjiba, Jahmane, & Abid, 2020; Schons & Steinmeier, 2016). Furthermore, FE regression can control for multicollinearity risk, estimation bias (Baltagi, 2005), and omitted variable bias (Wooldridge, 2010).

$$\begin{aligned} TOBINQ_i =& \beta_0 + \beta_1.ESG - pre_i + \beta_2.BSIZE_i + \beta_3.BINDEPEND_i \\ &+ \beta_4.BDIVERS_i + \beta_5.CDUALITY_i + \beta_6.FSIZE_i + \beta_7.ROA_i \\ &+ \beta_8.LEVERAGE_i + \beta_9.CRATIO_i + \beta_{10}.FFLOAT_i \\ &+ \text{Country FE} + \text{Industry FE} + \text{Year FE} + \varepsilon_i \end{aligned} \quad (3)$$

Table 12
WGI as the additional control variable (Table 6).

	(1)	(2)	(3)	(4)
Independent variables	TOBINQ	TOBINQ	TOBINQ	TOBINQ
ESG-pre	0.13***			
	(42.37)			
CFLOW	−7.69***	0.39***	−0.071	0.19
	(−30.85)	(3.52)	(−0.60)	(1.39)
ESG-pre*CFLOW	0.23***			
	(35.21)			
ESG-res		−0.00053		
		(−0.87)		
ESG-res*CFLOW		0.017***		
		(3.12)		
ESG-resq			−0.12***	
			(−5.47)	
ESG-resq*CFLOW			1.86***	
			(9.67)	
ESG-resb				0.0025
				(0.14)
ESG-resb*CFLOW				0.41**
				(2.49)
Controls	Included	Included	Included	Included
Country FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	43,803	43,803	43,803	43,803
Adj. R^2	0.424	0.361	0.362	0.361
F-stat.	415.07***	317.94***	319.68***	317.91***

This table reports the moderating role of CFLOW between optimal and excessive CSR with firm value by including WGI as an additional control variable. TOBINQ is market capitalization plus total debt over total assets. CFLOW is cash flow from operations/total assets. The excessive CSR proxies generated from ESG are ESG-res (residual ESG based on Eq. (1), which is a continuous variable), ESG-resq (observations obtained from the top quartile of residual ESG based on Eq. (1) take 1, otherwise 0), and ESG-resb (if residual ESG based on Eq. (1) is positive, it takes 1, otherwise 0). ESG-pre is the predicted ESG score based on Eq. (1), which is optimal CSR level. All variables are defined in Table 1; *t*-statistics are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. FE: Fixed-effect.

$$\begin{aligned}\text{TOBINQ}_i =& \beta_0 + \beta_1.\text{ESG} - \text{res}_i + \beta_2.\text{BSIZE}_i + \beta_3.\text{BINDEPEND}_i \\ &+ \beta_4.\text{BDIVERS}_i + \beta_5.\text{CDUALITY}_i + \beta_6.\text{FSIZE}_i + \beta_7.\text{ROA}_i \\ &+ \beta_8.\text{LEVERAGE}_i + \beta_9.\text{CRATIO}_i + \beta_{10}.\text{FFLOAT}_i \\ &+ \text{Country FE} + \text{Industry FE} + \text{Year FE} + \varepsilon_i \end{aligned} \quad (4)$$

$$\begin{aligned}\text{TOBINQ}_i =& \beta_0 + \beta_1.\text{ESG} - \text{resq}_i + \beta_2.\text{BSIZE}_i + \beta_3.\text{BINDEPEND}_i \\ &+ \beta_4.\text{BDIVERS}_i + \beta_5.\text{CDUALITY}_i + \beta_6.\text{FSIZE}_i + \beta_7.\text{ROA}_i \\ &+ \beta_8.\text{LEVERAGE}_i + \beta_9.\text{CRATIO}_i + \beta_{10}.\text{FFLOAT}_i \\ &+ \text{Country FE} + \text{Industry FE} + \text{Year FE} + \varepsilon_i \end{aligned} \quad (5)$$

$$\begin{aligned}\text{TOBINQ}_i =& \beta_0 + \beta_1.\text{ESG} - \text{resb}_i + \beta_2.\text{BSIZE}_i + \beta_3.\text{BINDEPEND}_i \\ &+ \beta_4.\text{BDIVERS}_i + \beta_5.\text{CDUALITY}_i + \beta_6.\text{FSIZE}_i + \beta_7.\text{ROA}_i \\ &+ \beta_8.\text{LEVERAGE}_i + \beta_9.\text{CRATIO}_i + \beta_{10}.\text{FFLOAT}_i \\ &+ \text{Country FE} + \text{Industry FE} + \text{Year FE} + \varepsilon_i \end{aligned} \quad (6)$$

3.3.2. *Moderation analysis—Baseline models*

The baseline research models also included moderating effects. To this end, we examined the moderating effects of CFLOW and INVESTMENT on the associations between the dependent (TOBINQ) and independent (ESG-pre, ESG-res, ESG-resq, and ESG-resb) testing variables. The formulation of the moderation effect is illustrated in Eq. (7).

Table 13
WGI as the additional control variable (Table 7).

	(1)	(2)	(3)	(4)
Independent variables	TOBINQ	TOBINQ	TOBINQ	TOBINQ
ESG-pre	0.17***			
	(56.83)			
INVESTMENT	0.69***	0.34***	0.37***	0.37***
	(17.01)	(27.28)	(27.05)	(23.28)
ESG-pre*INVESTMENT	−0.0096***			
	(−9.04)			
ESG-res		0.0018***		
		(4.69)		
ESG-res*INVESTMENT		−0.0026***		
		(−3.49)		
ESG-resq			0.070***	
			(5.21)	
ESG-resq*INVESTMENT			−0.14***	
			(−4.93)	
ESG-resb				0.061***
				(4.87)
ESG-resb*INVESTMENT				−0.063***
				(−2.68)
Controls	Included	Included	Included	Included
Country FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	37,987	37,987	37,987	37,987
Adj. R^2	0.438	0.389	0.390	0.389
F-stat.	380.15***	311.53***	311.82***	311.49***

This table reports the moderating role of INVESTMENT between optimal and excessive CSR with firm value by including WGI as an additional control variable. TOBINQ is market capitalization plus total debt over total assets. INVESTMENT is property plant and equipment growth percentage. The excessive CSR proxies generated from ESG are ESG-res (residual ESG based on Eq. (1), which is a continuous variable), ESG-resq (observations obtained from the top quartile of residual ESG based on Eq. (1) take 1, otherwise 0), and ESG-resb (if residual ESG based on Eq. (1) is positive, it takes 1, otherwise 0). ESG-pre is the predicted ESG score based on Eq. (1), which is optimal CSR level. All variables are defined in Table 1; *t*-statistics are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. FE: Fixed-effect.

Table 14
Alternative testing variables (Table 5).

	(1)	(2)	(3)	(4)
Independent variables	TOBINQ	TOBINQ	TOBINQ	TOBINQ
ES-pre	0.13***			
	(77.67)			
ES-res		0.0010***		
		(3.09)		
ES-resq			0.035***	
			(2.58)	
ES-resb				0.081***
				(6.56)
Controls	Included	Included	Included	Included
Country FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	43,803	43,803	43,803	43,803
Adj. R^2	0.438	0.360	0.360	0.361
F-stat.	455.96***	330.19***	330.13***	330.89***

This table reports the association of optimal and excessive CSR with firm value by replacing ESG with ES. TOBINQ is market capitalization plus total debt over total assets. The excessive CSR proxies generated from ES are ES-res (residual ES based on Eq. (2), which is a continuous variable), ES-resq (observations obtained from the top quartile of residual ES based on Eq. (2) take 1, otherwise 0), and ES-resb (if residual ES based on Eq. (2) is positive, it takes 1, otherwise 0). ES-pre is the predicted ES score based on Eq. (2), which is optimal CSR level. All variables are defined in Table 1; *t*-statistics are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. FE: Fixed-effect.

Table 15
Alternative testing variables (Table 6).

	(1)	(2)	(3)	(4)
Independent variables	TOBINQ	TOBINQ	TOBINQ	TOBINQ
ES-pre	0.12***			
	(61.60)			
CFLOW	−3.35***	0.38***	−0.25**	0.13
	(−18.94)	(3.50)	(−2.07)	(0.93)
ES-pre*CFLOW	0.13***			
	(26.47)			
ES-res		−0.00051		
		(−0.98)		
ES-res*CFLOW		0.017***		
		(3.71)		
ES-resq			−0.18***	
			(−8.47)	
ES-resq*CFLOW			2.50***	
			(13.17)	
ES-resb				0.037**
				(1.99)
ES-resb*CFLOW				0.54***
				(3.30)
Controls	Included	Included	Included	Included
Country FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	43,803	43,803	43,803	43,803
Adj. R^2	0.447	0.361	0.363	0.361
F-stat.	460.83***	322.13***	325.32***	322.76***

This table reports the moderating role of CFLOW between optimal and excessive CSR with firm value by replacing ESG with ES. CFLOW is cash flow from operations/total assets. The excessive CSR proxies generated from ES are ES-res (residual ES based on Eq. (2), which is a continuous variable), ES-resq (observations obtained from the top quartile of residual ES based on Eq. (2) take 1, otherwise 0), and ES-resb (if residual ES based on Eq. (2) is positive, it takes 1, otherwise 0). ES-pre is the predicted ES score based on Eq. (2), which is optimal CSR level. All variables are defined in Table 1; *t*-statistics are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. FE: Fixed-effect.

$$y_i = \beta_0 + \beta_1.X_{1i} + \beta_2.M_i + \beta_3.(X_{1i}{}^{*}Mi) + \beta_4.X_{2i} + \text{Country FE} + \text{Industry FE} + \text{Year FE} + \varepsilon_i \quad (7)$$

In Eq. (7), the dependent variable is TOBINQ, represented by the "y_i" term; the independent testing variables are ESG-pre, ESG-res, ESG-resq, and ESG-resb, denoted by the "X_{1i}" term; the moderating variables are CFLOW and INVESTMENT, denoted by the "M_i" term; and the independent control variables are BSIZE, BINDEPEND, BDIVERS, CDUALITY, FSIZE, ROA, LEVERAGE, CRATIO, and FFLOAT, denoted by the "X_{2i}" term.

To control for heteroscedasticity in the regression analyses (Wooldridge, 2020), we used robust standard errors with the Huber–White sandwich estimator (Huber, 1967; White, 1980).

4. Findings

4.1. Summary statistics

We subjected the research variables to univariate analysis, the descriptive statistics for which are shown in Table 3. The descriptive statistics for the first phase are reported in Panel A. The mean values for ESG and ES are 39.70 and 37.16, respectively (Table 3, Panel A). A summary of the research variables for the second phase is reported in Panel B. Accordingly, the average for TOBINQ is 1.64, and that for TOBINQ-ADJ is 0.39. Moreover, the mean values for CFLOW and INVESTMENT are 0.08 and 0.14, respectively. For the variables of interest, the averages are 39.70 for ESG-pre, 0.00 for ESG-res, 0.28 for ESG-resq, and 0.49 for ESG-resb (Table 3, Panel B).

Table 16
Alternative testing variables (Table 7).

	(1)	(2)	(3)	(4)
Independent variables	TOBINQ	TOBINQ	TOBINQ	TOBINQ
ES-pre	0.13***			
	(72.89)			
INVESTMENT	0.51***	0.34***	0.38***	0.38***
	(18.91)	(26.94)	(27.35)	(24.45)
ES-pre*INVESTMENT	−0.0058***			
	(−7.76)			
ES-res		0.0016***		
		(5.02)		
ES-res*INVESTMENT		−0.0026***		
		(−4.17)		
ES-resq			0.060***	
			(4.46)	
ES-resq*INVESTMENT			−0.15***	
			(−5.34)	
ES-resb				0.096***
				(7.53)
ES-resb*INVESTMENT				−0.089***
				(−3.73)
Controls	Included	Included	Included	Included
Country FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	37,987	37,987	37,987	37,987
Adj. R^2	0.464	0.389	0.390	0.390
F-stat.	428.64***	315.72***	315.84***	316.27***

This table reports the moderating role of INVESTMENT between optimal and excessive CSR with firm value by replacing ESG with ES. INVESTMENT is property plant and equipment growth percentage. The excessive CSR proxies generated from ES are ES-res (residual ES based on Eq. (2), which is a continuous variable), ES-resq (observations obtained from the top quartile of residual ES based on Eq. (2) take 1, otherwise 0), and ES-resb (if residual ES based on Eq. (2) is positive, it takes 1, otherwise 0). ES-pre is the predicted ES score based on Eq. (2), which is optimal CSR level. All variables are defined in Table 1; *t*-statistics are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. FE: Fixed-effect.

4.2. Correlation analysis

Pearson's correlation coefficients, which are reported in Table 4, indicate that ESG-pre and ESG-res had a significant negative correlation with TOBINQ and TOBINQ-ADJ ($p < 0.05$). Moreover, CFLOW and INVESTMENT had a significant positive correlation with TOBINQ and TOBINQ-ADJ ($p < 0.05$). We also examined the existence of multicollinearity for the independent testing variables. We calculated the variance inflation factor (VIF) values to determine whether there was any significant multicollinearity among the independent variables (Table A1 in the Appendix). The results of the multicollinearity analysis revealed that the VIF values ranged from 1.04 to 2.87, which were significantly less than the suggested cut-off value of 10 (Hair Jr et al., 2019; Kennedy, 2008; Neter, Kutner, Nachtsheim, & Wasserman, 1996). Therefore, there was no threat of multicollinearity among the independent variables in the baseline research models.

4.3. Baseline analyses

We examined the baseline research models with TOBINQ as the dependent variable using country–industry–year FE regression analysis, as shown in Table 5. The results revealed that the coefficients for ESG-pre, ESG-res, ESG-resq, and ESG-resb were significantly positive. Thus, although they confirmed H1a, they rejected H1b, supporting the stakeholder view but rejecting the agency perspective. Regarding the economic significance of the results, we multiplied the standard deviations of ESG-pre and ESG-res values by the coefficients of ESG-pre and ESG-res, respectively. Accordingly, an increase in ESG-pre by one standard deviation yielded an increase in TOBINQ by 103.24% (i.e.:

Table 17
Two-stage least squares (2SLS) regression analysis.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Independent variables	ESG-pre	TOBINQ	ESG-res	TOBINQ	ESG-resq	TOBINQ	ESG-resb	TOBINQ
	1.stage	2.stage	1.stage	2.stage	1.stage	2.stage	1.stage	2.stage
ESG-pre-IndAve	−0.058***							
	(−8.45)							
ESG-pre(t-1)	0.47***							
	(166.27)							
ESG-res-IndAve			−0.047					
			(−0.87)					
ESG-res(t-1)			0.84***					
			(282.90)					
ESG-resq-IndAve					−0.090			
					(−1.21)			
ESG-resq(t-1)					0.64***			
					(157.47)			
ESG-resb-IndAve							−0.048	
							(−0.73)	
ESG-resb(t-1)							0.65***	
							(165.28)	
ESG-pre		0.13***						
		(27.34)						
ESG-res				0.0018***				
				(4.00)				
ESG-resq						0.078***		
						(3.78)		
ESG-resb								0.057***
								(3.07)
Controls	Included	Included	Included	Included	Included	Included	Included	Included
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wu-Hausman test of endogeneity		137.01***		11.87***		5.79**		4.40**
Overidentifying restriction test (Sargan)		3.38		1.71		0.021		1.24
Weak instrument test (*F*-value)		13,863.70		40,021.2		12,401.6		13,658.5
N	37,771	37,771	37,771	37,771	37,771	37,771	37,771	37,771
Adj. R^2	0.980	0.424	0.734	0.380	0.468	0.380	0.494	0.380
F-stat.	24,549.53***		1371.23***		437.94***		486.91***	
χ^2-stat.		25,759.39***		23,241.51***		23,239.71***		23,237.72***

This table reports the outcome of the two-stage least squares (2SLS) regression analysis to address the endogeneity concern. Instrumental variables: industry averages of the independent testing variables excluding the focal firms and one-year lag of the independent variables; *t*-statistics are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. FE: Fixed-effect.

$0.17 \times 9.96 = 1.6932$ or $1.6932/1.64 = 103.24\%$ of the mean TOBINQ). Similarly, an improvement in ESG-res by one standard deviation resulted in a 0.96% increase in TOBINQ (i.e.: $0.00095 \times 16.65 = 0.0158175$ or $0.0158175/1.64 = 0.96\%$ of the mean TOBINQ).

Table 6 shows the moderating effect of CFLOW. Accordingly, the coefficients for the interaction variables were significantly positive. In particular, the product terms, including ESG-pre*CFLOW, ESG-res*CFLOW, ESG-resq*CFLOW, and ESG-resb*CFLOW, had a significant positive relationship with TOBINQ, which supports H2 regarding the positive moderating effect of cash flow on the relationship between excessive CSR and firm value.

Table 7 displays the moderating role of INVESTMENT. The interaction variables were significantly negative: ESG-pre*INVESTMENT, ESG-res*INVESTMENT, ESG-resq*INVESTMENT, and ESG-resb*INVESTMENT had significant negative associations with TOBINQ, which validates H3 concerning the positive moderating effect of firm growth on the relationship between excessive CSR and firm value.

4.4. Robustness tests

This section describes the robustness of the results of the initial baseline research models, which were examined using further analyses. We incorporated alternative dependent variables, control variables, testing variables, and methods to address endogeneity.

4.4.1. Alternative dependent variables

We included TOBINQ-ADJ as the alternative dependent variable in the research models to consider variations in firm value depending on industrial characteristics (Blank & Hadley, 2021). The direct relationships between the testing variables and the alternative dependent variable were significantly positive, which aligned with the baseline analysis results (Table 8). Also, the results concerning the moderation effect of CFLOW and INVESTMENT on the alternative dependent variable were also consistent with the initial results of the moderation analysis (Tables 9 and 10).

4.4.2. Additional control variable

We included WGI[5] as an additional control variable in the research models to control for country-level institutional quality variations (Gugler, Peev, & Segalla, 2013). The results for the direct associations, as well as the moderating effects of CFLOW and INVESTMENT, were compatible with the initial baseline analysis results (Tables 11–13).

[5] We used the average of six Worldwide Governance Indicators (WGI): voice and accountability, government effectiveness, regulatory quality, political stability and the absence of violence/terrorism, rule of law, and control of corruption. All six indicators and the averages ranged from −2.5 to 2.5. These six indicators and the WGI composite indicator ranged from −2.5 to 2.5. The data were obtained from the World Bank (2021).

Table 18
Alternative sample based on propensity score matching (PSM) (Tables 5–7 for ESG-pre and ESG-res).

Panel A: Nearest neighbor matching (k = 2)

	(1)	(2)	(3)	(4)	(5)	(6)
Independent variables	TOBINQ	TOBINQ	TOBINQ	TOBINQ	TOBINQ	TOBINQ
ESG-pre	0.16***		0.12***		0.15***	
	(41.70)		(29.54)		(40.10)	
ESG-res		0.00079*		−0.0024***		0.0015***
		(1.81)		(−3.31)		(3.31)
CFLOW			−6.84***	0.71***		
			(−21.60)	(4.88)		
ESG-pre*CFLOW			0.21***			
			(26.21)			
ESG-res*CFLOW				0.036***		
				(5.41)		
INVESTMENT					0.78***	0.30***
					(15.19)	(18.99)
ESG-pre*INVESTMENT					−0.013***	
					(−9.81)	
ESG-res*INVESTMENT						−0.0018**
						(−2.08)
Controls	Included	Included	Included	Included	Included	Included
N	25,260	25,260	25,260	25,260	22,522	22,522
Adj. R^2	0.418	0.378	0.434	0.380	0.446	0.405
F-stat.	243.07***	205.75***	252.66***	201.88***	236.63***	199.68***

Panel B: Nearest neighbor matching (k = 5)

	(1)	(2)	(3)	(4)	(5)	(6)
	TOBINQ	TOBINQ	TOBINQ	TOBINQ	TOBINQ	TOBINQ
ESG-pre	0.16***		0.12***		0.16***	
	(50.76)		(36.02)		(49.31)	
ESG-res		0.00062*		−0.0013**		0.0014***
		(1.67)		(−2.02)		(3.59)
CFLOW			−7.13***	0.71***		
			(−25.92)	(5.82)		
ESG-pre*CFLOW			0.22***			
			(30.98)			
ESG-res*CFLOW				0.021***		
				(3.69)		
INVESTMENT					0.73***	0.32***
					(16.35)	(23.93)
ESG-pre*INVESTMENT					−0.011***	
					(−9.62)	
ESG-res*INVESTMENT						−0.0028***
						(−3.59)
Controls	Included	Included	Included	Included	Included	Included
N	35,201	35,201	35,201	35,201	30,946	30,946
Adj. R^2	0.415	0.373	0.431	0.373	0.445	0.400
F-stat.	334.52***	279.69***	347.79***	273.49***	323.25***	269.24***

This table reports the results of the analyses based on propensity score matching (PSM) for the direct (Columns 1 and 2) and moderating (Columns 3–6) effects using nearest neighbor matching within caliper for $k = 2$ in Panel A and within caliper for $k = 5$ in Panel B. Nearest neighbor matching: ATT (Average Treatment effect on the Treated) = 1.53; *t*-value: −1.29; Bootstrap: Observed coefficient: 0.1208; Bootstrap Standard Error: 0.0253; *Z*-value: 4.78; *p*-value: 0.000.
t-statistics are reported in parentheses. *$p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

4.4.3. Alternative testing variables

Following Yang and Yulianto (2022), we replaced ESG with ES to determine optimal and excessive CSR levels, as described in Eq. (2). *Then, we incorporated* the newly generated testing variables using Eq. (2) in the first phase, including ES-pre, ES-res, ES-resq, and ES-resb, into the research models. The direct association and moderation analyses were rerun with the alternative testing variables of interest. The results of the analyses aligned with the initial baseline analysis results (Tables 14–16).

4.4.4. Alternative method

Finally, we performed a two-stage least squares (2SLS) regression analysis to address endogeneity concerns. Moreover, we used the industry averages of the independent testing variables, excluding the focal firms and the one-year lag of the independent testing variables, as the instrumental variables (Murcia, Panwar, & Tarzijan, 2021; Wang & Li, 2008). The first stage, second stage, Wu–Hausman test of endogeneity, overidentifying restriction test, and weak instrument test results are reported in Table 17. Accordingly, the results of the 2SLS regression analysis were compatible with the initial baseline analysis results.

4.4.5. Propensity score matching (PSM)

Finally, we generated another alternative sample using the propensity score matching (PSM) method to mitigate potential endogeneity concerns. Toward this end, we used a module developed by Leuven and Sianesi (2003). First, we created treatment and control groups by splitting the sample into quartiles based on ESG-pre and ESG-res. Toward this end, we used the top quartile values for ESG-pre and ESG-res (highest predicted and residuals of the overall ESG score) and assigned a value of 1 for the treatment group but 0 for the rest of the values representing the control group. The treatment group included observations

Table 19
Firm size-based further tests.

Panel A: Large firms (Tables 5–7 for ESG-pre and ESG-res)

	(1)	(2)	(3)	(4)	(5)	(6)
Independent variables	TOBINQ	TOBINQ	TOBINQ	TOBINQ	TOBINQ	TOBINQ
ESG-pre	0.027***		−0.0017		0.027***	
	(8.73)		(−0.51)		(8.66)	
ESG-res		0.00098***		−0.00091*		0.0014***
		(3.87)		(−1.80)		(5.17)
CFLOW			−6.12***	2.88***		
			(−9.63)	(25.55)		
ESG-pre*CFLOW			0.18***			
			(14.26)			
ESG-res*CFLOW				0.020***		
				(3.81)		
INVESTMENT					−0.26***	0.11***
					(−3.54)	(9.20)
ESG-pre*INVESTMENT					0.0083***	
					(5.31)	
ESG-res*INVESTMENT						−0.0024***
						(−3.87)
Controls	Included	Included	Included	Included	Included	Included
Country, industry, and year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	21,901	21,901	21,901	21,901	20,178	20,178
Adj. R^2	0.506	0.505	0.524	0.519	0.520	0.518
F-stat.	300.38***	298.72***	314.03***	308.45***	284.60***	282.55***

Panel B: Small firms (Tables 5–7 for ESG-pre and ESG-res)

	(1)	(2)	(3)	(4)	(5)	(6)
Independent variables	TOBINQ	TOBINQ	TOBINQ	TOBINQ	TOBINQ	TOBINQ
ESG-pre	0.19***		0.16***		0.20***	
	(42.65)		(32.84)		(41.25)	
ESG-res		−0.00049		−0.0035***		0.0017**
		(−0.67)		(−3.29)		(2.19)
CFLOW			−7.80***	0.10		
			(−20.83)	(0.64)		
ESG-pre*CFLOW			0.26***			
			(23.04)			
ESG-res*CFLOW				0.033***		
				(3.95)		
INVESTMENT					0.49***	0.41***
					(7.29)	(20.98)
ESG-pre*INVESTMENT					−0.0028	
					(−1.40)	
ESG-res*INVESTMENT						−0.0052***
						(−4.01)
Controls	Included	Included	Included	Included	Included	Included
Country, industry, and year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	21,902	21,902	21,902	21,902	17,809	17,809
Adj. R^2	0.385	0.334	0.400	0.335	0.419	0.363
F-stat.	184.14***	147.60***	190.61***	144.07***	167.47***	132.90***

This table reports the association of optimal and excessive CSR with firm value and the moderating effects for large and small firms using the median of the total assets as the cut-off value. TOBINQ is market capitalization plus total debt over total assets. ESG-res is the excessive ESG score based on Eq. (1). ESG-pre is the predicted ESG score based on Eq. (1), which is optimal CSR level. CFLOW is cash flow from operations/total assets. INVESTMENT is property plant and equipment growth percentage; *t*-statistics are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. FE: Fixed-effect.

Table 20
Period-based further tests.

Panel A: Earlier periods between 2002 and 2015 (Tables 5–7 for ESG-pre and ESG-res)

	(1)	(2)	(3)	(4)	(5)	(6)
Independent variables	TOBINQ	TOBINQ	TOBINQ	TOBINQ	TOBINQ	TOBINQ
ESG-pre	0.12***		0.094***		0.11***	
	(34.16)		(24.10)		(30.36)	
ESG-res		0.0017***		0.0012		0.0019***
		(4.11)		(1.38)		(4.55)
CFLOW			−6.99***	1.26***		
			(−15.53)	(7.77)		
ESG-pre*CFLOW			0.22***			
			(18.95)			
ESG-res*CFLOW				0.0059		
				(0.68)		
INVESTMENT					0.58***	0.27***
					(9.19)	(14.13)
ESG-pre*INVESTMENT					−0.0077***	
					(−4.64)	
ESG-res*INVESTMENT						−0.00035
						(−0.31)
Controls	Included	Included	Included	Included	Included	Included
Country, industry, and year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	25,009	25,009	25,009	25,009	21,590	21,590
Adj. R^2	0.456	0.431	0.465	0.432	0.500	0.479
F-stat.	296.47***	267.94***	298.41***	262.04***	300.75***	276.45***

Panel B: Recent periods between 2016 and 2019 (Tables 5–7 for ESG-pre and ESG-res)

	(1)	(2)	(3)	(4)	(5)	(6)
Independent variables	TOBINQ	TOBINQ	TOBINQ	TOBINQ	TOBINQ	TOBINQ
ESG-pre	0.20***		0.15***		0.20***	
	(42.39)		(29.84)		(41.86)	
ESG-res		−0.00049		−0.0028***		0.0012*
		(−0.73)		(−2.99)		(1.75)
CFLOW			−6.08***	1.91***		
			(−18.07)	(11.04)		
ESG-pre*CFLOW			0.22***			
			(24.78)			
ESG-res*CFLOW				0.024***		
				(3.22)		
INVESTMENT					0.55***	0.30***
					(9.68)	(16.93)
ESG-pre*INVESTMENT					−0.0070***	
					(−4.75)	
ESG-res*INVESTMENT						−0.0040***
						(−3.79)
Controls	Included	Included	Included	Included	Included	Included
Country, industry, and year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	18,794	18,794	18,794	18,794	16,397	16,397
Adj. R^2	0.385	0.326	0.406	0.331	0.409	0.346
F-stat.	194.16***	150.29***	205.29***	148.64***	181.05***	138.49***

This table reports the association of optimal and excessive CSR with firm value and the moderating effects for earlier and recent periods (2002–2015 and 2016–2019). TOBINQ is market capitalization plus total debt over total assets. ESG-res is the excessive ESG score based on Eq. (1). ESG-pre is the predicted ESG score based on Eq. (1), which is optimal CSR level. CFLOW is cash flow from operations/total assets. INVESTMENT is property plant and equipment growth percentage; *t*-statistics are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. FE: Fixed-effect.

Table 21
Crisis periods 2007–2009 (Tables 5–7 for ESG-pre and ESG-res).

	(1)	(2)	(3)	(4)	(5)	(6)
Independent variables	TOBINQ	TOBINQ	TOBINQ	TOBINQ	TOBINQ	TOBINQ
ESG-pre	0.096***		0.11***		0.088***	
	(20.07)		(6.18)		(18.41)	
ESG-res		0.0014***		0.041		0.0015***
		(2.60)		(1.37)		(2.69)
CFLOW			7.55	−2.61		
			(0.74)	(−0.98)		
ESG-pre*CFLOW			−0.23			
			(−1.04)			
ESG-res*CFLOW				−0.49		
				(−1.32)		
INVESTMENT					0.38***	0.19***
					(3.82)	(7.40)
ESG-pre*INVESTMENT					−0.0043*	
					(−1.67)	
ESG-res*INVESTMENT						−0.0025*
						(−1.78)
Controls	Included	Included	Included	Included	Included	Included
Country, industry, and year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	12,089	12,089	12,089	12,089	10,680	10,680
Adj. R^2	0.475	0.457	0.475	0.457	0.501	0.485
F-stat.	177.08***	165.26***	171.59***	160.13***	168.34***	158.23***

This table reports the association of optimal and excessive CSR with firm value and the moderating effects during the global financial crisis (2007–2009). TOBINQ is market capitalization plus total debt over total assets. ESG-res is the excessive ESG score based on Eq. (1). ESG-pre is the predicted ESG score based on Eq. (1), which is optimal CSR level. CFLOW is cash flow from operations/total assets. INVESTMENT is property plant and equipment growth percentage; *t*-statistics are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. FE: Fixed-effect.

that fell inside the distribution's top quartile with the highest predicted and residuals of the overall ESG score, and we selected the most comparable records from the remainder of the sample for each observation in the treatment group using the controls in the regression analysis (Chatjuthamard, Kijkasiwat, Jiraporn, & Uyar, 2022; Likitapiwat, Treepongkaruna, Jiraporn, & Uyar, 2022). We then reexamined the baseline direct associations, along with the moderating effects taken from the baseline analysis, using an alternative sample based on the PSM method (Table 18) and based on k = 2 nearest neighbor matching and k = 5 nearest neighbor matching (Gao, Chu, Zheng, & Ye, 2022). The average treatment effect on the treated (ATT) of the nearest neighbor matching approach along with the results of the bootstrap are provided in Table 18.[6] Furthermore, the two PSM assumptions were clarified further. For instance, the assumption of unconfoundedness (conditional independence assumption) was met by using the correct covariates as observed (de Luna & Johansson, 2014). The number of covariates were not too many or too few. The rationale for the variable's selection is explained in detail in the prior section. Moreover, the assumption of a common support condition is supported since, for each value of the covariates, there was a positive probability of being both treated and untreated. Namely, both treated and control observations for each value of the covariates were made. Accordingly, the results were consistent with the findings from the initial analysis.

Consequently, the findings were robust regarding alternative CSR proxies, industry-adjusted firm value measures, public governance indicators, and endogeneity concerns.

4.4.6. Further tests

In addition, we performed several further tests considering firm size (large vs. small), different time periods (earlier, recent, and crisis periods), and alternative testing variables of interest (different types of CSR).

To further determine whether the results differed for large and small firms, we created two subsamples with large and small firms using the median of the total assets as the cut-off value. Then, the direct and the interaction models were rerun based on large and small firms (Table 19). The results were largely consistent with the initial analysis results with some exceptions.[7]

To observe whether the results were time-varying, we created two subsamples with earlier periods (between 2002 and 2015) and recent periods (between 2016 and 2019). The reason for using 2015 as the cut-off year was that the observations' ratio was high in the most recent periods yet relatively small in the earlier periods (Table 20). Besides, we wanted to verify whether the results held during the financial crisis (between 2007 and 2009) (Table 21). The baseline research models were reexamined for these three periods. Similarly, the results were mainly compatible with the baseline results with some exceptions.[8]

Finally, we wanted to determine whether the findings differed for different types of CSR. First, we included ENV-pre and ENV-res as the alternative CSR variables (Table 22, Panel A). The baseline research models were rerun using these variables, which yielded results fully consistent with the initial baseline analysis. Then, we included SOC-pre and SOC-res as the alternative CSR variables (Table 22, Panel B). The results were mainly compatible with the initial analysis results with one exception.[9]

[6] Nearest neighbor matching: ATT (Average Treatment effect on the Treated) = 1.53; *t*-value: −1.29; Bootstrap-results = Observed coefficient is 0.1208; Bootstrap Standard Error is 0.0253; *Z*-value is 4.78; *P*-value is 0.000. The theoretical formulation of ATT was as follows: $\frac{1}{N^T}\sum_{i\in T}\left[Y_i^T - \sum_{j\in C(i)} w_{ij} Y_j^C\right]$, where $N^T$is the number of treated units, $C(i)$ is the set of controls matched to treated unit i, $w_{ij} = \frac{1}{N_i^C}$ *if* $j \in C(i); 0,$ *otherwise*; and N_i^C is the number of controls matched to treated unit i (Grotta & Bellocco, 2014).

[7] The coefficient of ESG-pre*INVESTMENT became significantly positive for the sample of large firms. Also, the coefficients of ESG-res and ESG-pre*INVESTMENT became non-significant in the sample of small firms.

[8] The coefficients of ESG-res*CFLOW and ESG-res*INVESTMENT became non-significant in the earlier periods, and only the coefficient of ESG-res became non-significant in the recent periods. Also, the coefficients of ESG-pre*CFLOW and ESG-res*CFLOW became non-significant during the crisis periods.

[9] The coefficient of SOC-res*CFLOW was non-significant.

Table 22
Further test on different types of CSR.

Panel A: ENV-pre and ENV-res alternative testing variables (Tables 5–7 for ENV-pre and ENV-res)

	(1)	(2)	(3)	(4)	(5)	(6)
Independent variables	TOBINQ	TOBINQ	TOBINQ	TOBINQ	TOBINQ	TOBINQ
ENV-pre	0.088***		0.066***		0.086***	
	(48.13)		(34.26)		(46.69)	
ENV-res		0.00090***		−0.0018***		0.0013***
		(3.31)		(−4.09)		(4.73)
CFLOW			−2.47***	0.41***		
			(−17.88)	(3.71)		
ENV-pre*CFLOW			0.14***			
			(32.91)			
ENV-res*CFLOW				0.031***		
				(7.71)		
INVESTMENT					0.55***	0.33***
					(26.60)	(26.39)
ENV-pre*INVESTMENT					−0.0081***	
					(−12.61)	
ENV-res*INVESTMENT						−0.0023***
						(−4.23)
Controls	Included	Included	Included	Included	Included	Included
Country, industry, and year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	43,803	43,803	43,803	43,803	37,987	37,987
Adj. R^2	0.393	0.360	0.407	0.362	0.424	0.389
F-stat.	378.36***	330.22***	392.13***	323.09***	364.40***	315.68***

Panel B: SOC-pre and SOC-res alternative testing variables (Tables 5–7 for SOC-pre and SOC-res)

	(1)	(2)	(3)	(4)	(5)	(6)
Independent variables	TOBINQ	TOBINQ	TOBINQ	TOBINQ	TOBINQ	TOBINQ
SOC-pre	0.16***		0.15***		0.15***	
	(105.25)		(88.00)		(96.73)	
SOC-res		0.00068**		0.0012**		0.0014***
		(2.17)		(2.40)		(4.30)
CFLOW			−3.80***	0.40***		
			(−16.65)	(3.62)		
SOC-pre*CFLOW			0.11***			
			(20.69)			
SOC-res*CFLOW				−0.0057		
				(−1.31)		
INVESTMENT					0.37***	0.34***
					(10.77)	(27.57)
SOC-pre*INVESTMENT					−0.0017**	
					(−2.04)	
SOC-res*INVESTMENT						−0.0020***
						(−3.34)
Controls	Included	Included	Included	Included	Included	Included
Country, industry, and year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	43,803	43,803	43,803	43,803	37,987	37,987
Adj. R^2	0.490	0.360	0.495	0.361	0.510	0.389
F-stat.	561.30***	330.09***	558.22***	321.79***	515.08***	315.50***

This table reports the association of optimal and excessive CSR with firm value and the moderating effects for different types of CSR (i.e., environmental and social performance). TOBINQ is market capitalization plus total debt over total assets. ENV-res and SOC-res are the excessive environmental and social scores, respectively, based on Eq. (1). ENV-pre and SOC-pre are the predicted environmental and social scores, respectively, based on Eq. (1), which are optimal environmental and social scores. CFLOW is cash flow from operations/total assets. INVESTMENT is property plant and equipment growth percentage; *t*-statistics are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. FE: Fixed-effect.

5. Discussion and conclusion

Although extensive past research has studied the connection between CSR and firm value, little distinction has been made between optimal CSR and excessive CSR. Thus, we addressed this issue by investigating whether shareholders punish or reward excessive CSR engagement, considering the moderating effect of cash flow and firm growth. We applied country–industry–year FE regression to a cross-country sample of 43,803 firm-year observations between 2002 and 2019. The findings showed that both optimal CSR and excessive CSR increased firm value, but optimal CSR had greater value relevance for shareholders. However, although cash flow positively moderated the relationship between optimal and excessive CSR and firm value, firm growth negatively moderated this relationship. The findings were robust regarding alternative CSR proxies, industry-adjusted firm value measures, public governance indicators, and endogeneity concerns. Finally, further tests revealed that although the results were largely consistent across large and small firms, in earlier and recent periods, during the crisis period, and for different types of CSR proxies (i.e., environmental and social performance), there were a few differences, which warrants caution when making inferences in some instances.

Although the findings confirmed stakeholder theory, they rejected agency theory. Whereas the former holds that firms engaging in excessive levels of CSR receive support from a wide range of stakeholders, including shareholders (Freeman, 1984, 2010), the latter claims that excessive CSR may cause agency conflicts between managers and

shareholders (Jensen & Meckling, 1976). Furthermore, both moderating effects confirmed financial slack theory. The moderating effect of cash flow implies that shareholders' approval of excessive CSR engagement depends on the availability of ample funds (Cheng et al., 2014; Islam et al., 2021) because associated expenditures are regarded as discretionary (McGuire et al., 1990). However, the negative moderating effect of firm investment implies that firms' life-cycle stages determine their excessive CSR involvement (McWilliams & Siegel, 2000; Russo & Fouts, 1997). Growing firms are exposed to greater market competition and hence must mobilize their resources for essential growth and image building. Therefore, they are less likely to invest in socially responsible projects (Hasan & Habib, 2017), and shareholders' reaction to excessive CSR commitment beyond an optimal level depends on the availability of firms' slack resources and their growth.

The results have several implications for firms, corporate boards, and shareholders. The findings highlight that, for firms, excessive CSR engagement is more useful than harmful because it is valued by stock markets. This could guide firms that are hesitant about whether an overemphasis on stakeholders may backfire in the marketplace. However, the moderating effects highlight the role of contingencies in this main relationship. The moderating effect of cash flow demonstrates that shareholders value excessive CSR only when firms have the capability to generate significant cash flow from their operations. Thus, firms with little ability to generate cash flow should not engage in excessive CSR because doing so may lead to shareholder backlash. Furthermore, the moderating effect of firm growth implies that investing firms should not engage in excessive CSR because they have limited financial resources, which should be deployed primarily for investment. Overall, the findings may help firms decide between CSR and investment when allocating their resources. For boards of directors as primary strategic decision-making bodies, the results could be useful for framing firms' CSR engagement policies. In line with our findings, shareholders can position themselves more effectively in the market and shape their portfolios accordingly since investors may or may not favor excessive CSR.

This study provides fruitful opportunities for future research. First, our cross-industry study reinforces the generalizability of the findings but may limit their validity for a specific sector. This limitation could prompt sector-specific future studies. Second, the findings may not be valid for extraordinary economic and social scenarios, such as the 2008 global financial crisis and the COVID-19 pandemic. Thus, future studies could address, for example, whether shareholders punish or reward excessive CSR engagement during difficult times. Other potential future studies could investigate the role of internal and external governance mechanisms in excessive CSR engagement and whether they generate value.

Declaration of Competing Interest

The authors declare that there is no conflict of interest.

Appendix

Table A1
Multicollinearity analysis.

Variable	VIF	Variable	VIF	Variable	VIF	Variable	VIF
FSIZE	2.87	LEVERAGE	1.68	LEVERAGE	1.68	LEVERAGE	1.68
ESG-pre	2.02	CRATIO	1.64	CRATIO	1.64	CRATIO	1.64
LEVERAGE	1.69	FSIZE	1.59	FSIZE	1.59	FSIZE	1.59
CRATIO	1.64	BSIZE	1.38	BSIZE	1.37	BSIZE	1.38
BSIZE	1.38	BDIVERS	1.17	BDIVERS	1.15	BDIVERS	1.16
BINDEPEND	1.35	BINDEPEND	1.13	BINDEPEND	1.13	BINDEPEND	1.13
BDIVERS	1.22	ROA	1.08	ROA	1.08	ROA	1.08
ROA	1.14	ESG-res	1.05	CDUALITY	1.05	CDUALITY	1.05
FFLOAT	1.05	FFLOAT	1.05	FFLOAT	1.04	FFLOAT	1.05
CDUALITY	1.04	CDUALITY	1.05	ESG-resq	1.04	ESG-resb	1.04
Mean VIF	1.54	Mean VIF	1.28	Mean VIF	1.28	Mean VIF	1.28

This table reports a multicollinearity check by reporting variance inflation factor (VIF) values.

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