Research Article / *Araştırma Makalesi*

INVESTORS' INTEREST IN THE MODERATING EFFECT OF CASH FLOWS ON EXCESSİVE CORPORATE SOCIAL RESPONSIBILITY

Cennet GÜRBÜZ iD

ABSTRACT

Today, information users are interested in disclosing non-financial information regarding activities carried out within the scope of corporate social responsibility (CSR). In this context, the reflection of CSR activities, which can increase company reputation and stakeholder interest, on financial performance is important. The research aims to determine the relationship of cash flows with firm value at optimal and excessive CSR levels. The research uses data on companies with ESG scores in Türkiye to determine the impact of CSR activities on firm value. The research applies panel data analysis to determine the impact of optimal and excessive CSR activities on firm value. The research points out that optimal CSR levels have a negative effect on firm value, while excessive CSR levels have a positive and significant effect. Additionally, the results reveal that cash flows positively moderate the relationship between excessive CSR levels and firm value. The research findings support that cash flows positively moderate the relationship between firm value and CSR at excessive levels. The research emphasizes the moderating role of cash flows by distinguishing between excessive and optimal CSR activities, in line with the literature on the relationship between CSR levels and firm value.

Keywords: *Cash Flows, Corporate Social Responsibility (CSR), ESG, Firm Value, Panel Data Analysis*

JEL Classification: *M40, G32, C33*

AŞIRI KURUMSAL SOSYAL SORUMLULUKTA NAKİT AKIŞLARININ DÜZENLEYİCİ ETKİSİNE YÖNELİK YATIRIMCI İLGİSİ

ÖZET

Günümüzde bilgi kullanıcıları kurumsal sosyal sorumluluk (KSS) kapsamında gerçekleştirilen faaliyetlere ilişkin finansal olmayan bilgilerin açıklanmasına ilgi göstermektedir. Bu kapsamda firma itibarı ve paydaş ilgisini artırabilen KSS faaliyetlerinin finansal performansa yansımaları önem arz etmektedir. Araştırma nakit akışlarının optimal ve aşırı KSS seviyelerinde firma değeri ile ilişkisini belirlemek amacındadır. Araştırma KSS faaliyetlerinin firma değerine olan etkisini belirlemek amacıyla Türkiye'de ESG skoruna sahip firma verilerini kullanmaktadır. Araştırmada optimal ve aşırı KSS faaliyetlerinin firma değerine etkisini belirlemek amacıyla panel veri analizi uygulanmaktadır. Araştırma optimal KSS düzeylerinin firma değeri üzerinde olumsuz, aşırı KSS düzeylerinin ise olumlu ve anlamlı etkisine işaret etmektedir. Ayrıca sonuçlar, nakit akışlarının aşırı KSS düzeyi ile firma değeri arasındaki ilişkiyi olumlu yönde yumuşattığını ortaya koymaktadır. Araştırma bulguları nakit akışlarının firma değeri ile KSS arasındaki ilişkiyi aşırı düzeylerde olumlu yönde etkilediğini desteklemektedir. Araştırma KSS düzeyleri ve

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1 PhD., Ministry of National Education, Türkiye, *cnntgrbz01@gmail.com*.

firma değeri ilişkisinde yönelik literatüre aşırı ve optimal KSS faaliyetlerine ilişkin ayrım yaparak nakit akışlarının düzenleyici etkisine vurgu yapmaktadır.

Anahtar Kelimeler: *Nakit Akışları, Kurumsal Sosyal Sorumluluk (KSS), ESG, Firma Değeri, Panel Veri Analizi.*

JEL Sınıflandırması: *M40, G32, C33*

1. Introduction

Financial statements, which allow stakeholders to examine the company's management activities, serve as accountability tools in corporate governance. Today, in addition to financial statements, reports presenting non-financial information regarding companies' environmental, management, and social activities attract the attention of stakeholders. In this context, corporate companies strive to obtain ESG scores for their companies by focusing on environmental, management, and social activities.

Today, for companies, profit maximization based on making more production and sales or minimizing costs is replaced by an approach aimed at meeting the expectations of society, employees, and customers.

Taking environmental sensitivity into consideration is becoming more important for companies (Gör & Tekin, 2018). The concept of social responsibility means that individuals and institutions that protect their own interests also protect the interests of society. This awareness is based on social benefit, which means companies that comply with moral rules have higher levels of social acceptability. Social responsibility activities contribute to increasing the image of companies by gaining social value (Demir & Konak, 2022). It is a fact that companies that continue their activities without considering society and do not create added value will not be able to continue their activities after a certain point. Companies that include all stakeholders in decision-making processes increase their profitability by gaining cost advantages and efficiency in the long term (Fettahoğlu, 2013). Social responsibility is an important dimension of sustainability. Companies that attach importance to social responsibilities not only increase their brand and market values but also gain social reputation (Özkan et al., 2018).

Following the corporate scandals that emerged in the late 19th century, it is seen that companies are more integrated into practices related to environmental, social, and governance (ESG) principles and attach more importance to CSR activities (Bajic & Yurtoğlu, 2018). Companies that violate ethical rules in their social and environmental decisions face various sanctions. These sanctions may be in the form of a negative reputation for consumers or penalties imposed by public authorities. The fact that companies must institutionalize in the face of these sanctions brought CSR to the agenda (Önder & Kaya, 2018). CSR covers corporate governance activities that focus on moderating employee rights, developing environmental protective and regulatory policies, and implementing social policies (Gör & Tekin, 2018).

ESG scores, which are seen as an important way to increase the value of a company, are increasingly attracting the attention of managers, investors, and other stakeholders (Ahmad et al., 2021). Shareholders, investors, lenders, governments, and other stakeholders expect

companies to provide more information on ESG. Companies' that meet this expectation will likely be rewarded at the market. The positive link between ESG scores and firm value is an indication of this. (Aydoğmuş et al., 2022). High ESG scores are an indication that firm management has accurately assessed potential risks related to social, environmental, and corporate governance. Having a high ESG score helps companies increase their brand value by gaining a positive reputation for all stakeholders. This indicates the existence of a positive relationship between ESG scores and company profitability (Erben Yavuz, 2023).

The increasing interest of responsible investors in CSR activities forces companies to determine strategies that prioritize stakeholder-oriented social values. Today, stakeholders need non-financial information regarding CSR activities in addition to financial data to predict the future cash flows of companies (Özer et al., 2023; Zuraida et al., 2018). CSR refers to the efforts of companies towards their social, environmental, and management obligations towards society, apart from profit motives. Some studies focusing on the relationship between CSR activities and company value in Türkiye evaluate the ESG score separately based on Environmental, Social and Corporate Governance sub-scores (Çetenak et al., 2022; Erben Yavuz, 2023; Şeker & Şengür, 2022; Şişman & Çankaya, 2021). Şeker & Şengür (2022) compare the ESG score, and Environmental, Social and Corporate Governance sub-scores based on different countries and show that the best score level for Türkiye is the corporate governance score.

Environmental, management, and social activities that constitute CSR factors are used to express the non-financial performances of companies (Atan et al., 2018). Transactions carried out during the activity period are used to measure financial performance. Presenting financial performance measures to stakeholders in a transparent, accurate, impartial, and fair manner is an indicator of social responsibility for companies. Correctly reflected information is an important factor for the sustainability of companies and for information users to make rational decisions (Özkan et al., 2018).

When CSR performance is included in a firm's management strategies, it can increase firm value. Therefore, CSR activities, which have an important role in sustaining many social activities, have a key role for society as well as investors and financial markets (Ahmad et al., 2021; Rezaee, 2016; Shiller, 2013). CSR activities that contribute positively to company value indirectly affect the future of the company by supporting sustainability. CSR activities carried out by corporate governance followed by long-term investors can create positive shareholder value for the firm (Nguyen et al., 2020). In developed markets, especially in periods of high economic uncertainty, CSR activities can increase firm value by compensating for the negative effects on financial performance. As a result of establishing a trust relationship with stakeholders in the long term, CSR activities can have a positive effect by increasing stakeholder participation (Rjiba et al., 2020).

In the financial investment decisions of financial statement users, cash flows may be seen as more secure than accounting standards that can be manipulated by managers. Therefore, company stakeholders are interested in cash information that allows them to understand a company's activities, especially where money comes from and how it is spent (Nwanyanwu, 2015). The cash positions of companies are important in carrying out environmental, management, and social activities.

There is some research on the relationship between CSR and company value in the literature, but it seems that there are few studies on optimal and excessive CSR levels. The research focuses on the relationship between CSR and firm value of companies with ESG scores for the years 2010–2021 in Türkiye. By distinguishing between optimal and excessive CSR levels, the effects on firm value and whether cash flows have a moderating effect are examined. The research contributes to the existing literature by encouraging research on understanding and developing the relationship between CSR and firm value. Whether cash flows have a moderating effect on CSR activities and their effects on firm value is examined by distinguishing between optimal and excessive CSR levels.

The research primarily addresses the creation of hypotheses by including a conceptual framework based on the literature. Then, the method, sample, and variables used in the research are explained. Following the findings obtained through the research analysis, conclusions and recommendations are presented.

2. Literature Review and Development of Hypotheses

Discussions continue in the literature about whether environmental activities carried out by companies create a competitive advantage or impose additional burdens on companies in terms of costs (Al-Shaer et al., 2023; Glavas & Mish, 2015). Although there are many studies on the relationship between CSR and firm value, the research results show confusion. While some of the literature studies support the stakeholder theory, the other part defends the agency theory. Corporate management must carry out activities and report information in line with the demands of stakeholders within the framework of accountability (Freeman, 1984). Stakeholder theory assumes that through CSR activities, companies can achieve better financial results by receiving support from a wide range of stakeholders, such as employees, clients, suppliers, and investors beyond shareholders. Agency theory is based on the fact that CSR activities will cause agency conflicts between managers and shareholders and reduce firm value because they consume companies' resources (Jensen & Meckling, 1976).

Stakeholder theory argues that CSR activities enable goodwill to be demonstrated for external stakeholders by increasing the company's reputation (Brammer & Pavelin, 2006; Orlitzky et al., 2003). Some studies showing that CSR activities positively affect company values reveal that capital expenditures for environmental purposes increase financial profits (Ahmad et al., 2021; Al-Shaer et al., 2023; Bose et. al, 2020; Buchanan, 2018; Clarkson et al., 2004; Özer et al., 2023; Srivastava & Anand, 2023). Companies that act more socially and environmentally responsible can reach higher values in financial markets (Kong et al., 2014; Rodgers et al., 2013). Investors may have strong negative reactions to announcements of negative CSR activities, especially those related to society and the environment (Krüger, 2015). CSR activities can support high stakeholder participation, allowing companies to gain a competitive advantage and increase company values (Hasan et al., 2018; Shahbaz et al., 2020). The fact that companies have strong liquidity and high asset volume can positively affect their ESG reporting and ESG scores. The positive relationship between the size of businesses and ESG reporting supports stakeholder theory (Şahin & Acar, 2023). Studies generally show that ESG scores are positively and significantly related to company value (Aydoğmuş et al., 2022; Çetenak et al., 2022; Erben Yavuz, 2023; Özer et al., 2023). CSR disclosures often add positive value to

companies in the markets. In addition, in the long run, companies with high-value CSR experience higher than normal growth in their abnormal earnings (Gregory et al., 2014).

There are studies in the literature that reveal the existence of a negative relationship or no relationship between CSR activities and company value (Atan et al., 2018; Duque-Grisales & Aguilera-Caracuel, 2019; Keçeli & Çankaya, 2020; Lee et al., 2009; Özdarak & Akarçay, 2022). Unlike stakeholder theory, these studies based on agency theory argue that CSR activities are not value-enhancing (Asogwa et al., 2020). These reveal that CSR activities reduce opportunities to use resources and negatively affect firm value as they cause high costs and conflict of interest for stakeholders (Ahmad et al., 2021; Barnett, 2007; Friedman, 1970; Greening & Turban, 2000). CSR activities may also trigger a decrease in firm value by creating a competitive disadvantage (Shen & Chang, 2009). In addition, CSR activities implemented by new and small-scale companies can harm firm value (D'Amato & Falivena, 2020). Even if CSR activities do not directly target firm value, there is a significant connection between CSR practices and firm value (Resende et al., 2024).

Excessive CSR is the level of CSR that goes beyond the optimal level determined through the firm's financial information and board characteristics, measured utilizing residual values after estimating CSR proxy values (Bu et al., 2021; Jian & Lee, 2015; Zhou, 2022). The optimal CSR level is when CSR practices are compatible with the financial and management characteristics of the company. Excessive CSR involvement refers to CSR activities that are not compatible with the financial and management characteristics of the company. Although excessive investment of capital goods in environmental and social activities may satisfy stakeholders, it may reduce financial profitability and cause share values to decline. Company management is expected to manage CSR activities in a way that will increase company value and provide greater stakeholder satisfaction (Al-Shaer et al., 2023). When making decisions about the company, management should take into account stakeholder reactions and profit maximization (Bird et al., 2007). Even if reporting CSR activities is used as a tool to cover up some violations, it may not affect firm profits in the short term or may have a negative reaction (Rim & Kim, 2016).

Recently, there has been increasing interest in optimal and excessive levels of CSR. The predicted value of Eq. (1) captures the optimal level of ESG (ESGpre), while the residuals capture excessive ESG (ESGres) (Al-Shaer et al., 2023; Bu et al., 2021; Jian & Lee, 2015; Zhou, 2022). Company management may tend to invest excessively in CSR activities to increase investor interest and build reputation (Jensen & Meckling, 1976; Krüger, 2015; Zhou, 2022). Agency conflict may occur between company management and shareholders who consume their resources by engaging in excessive CSR activities (Jensen & Meckling, 1976). For this reason, the following hypothesis is developed in the research, based on the assumption that excessive or optimal CSR activities will negatively affect firm value.

H_1: The level of CSR affects firm value.

Cash holdings play an important role in risk management and controlling financing costs. In the case of investment strategies that require insufficient cash flow or excessive cash flow, abnormal returns may occur (Oler & Picconi, 2014). Companies with profusion financial freedom can increase their participation in CSR activities by allocating more resources to

their social and environmental activities (Cheng et al., 2014). Companies with excess cash can easily invest in long-term strategic investments (Al-Shaer et al., 2023; Barnea & Rubin, 2010; Zwiebel, 1996).

Financial slack theory is based on the idea that firms can increase investments in capital goods in discretionary CSR activities in cases of profusion of cash flows (Cheng et al., 2014; Lin et al., 2019). In addition, financial slack theory shows that firms with plenty of fund resources can gain a significant competitive advantage by engaging in activities and projects more assertively and boldly (Amato & Amato, 2011; Islam et al., 2021). The literature reveals that companies can spend more easily on CSR activities in cases of an abundance of resources. Studies indicate that the market may respond positively to CSR activities, resulting in earnings growth at a higher rate than expected (Al-Shaer et al., 2023; Gregory et al., 2014). Company management that engages in excessive CSR activities without abundant cash may attract the reaction of stakeholders who think that the strategy they implement is wrong. Therefore, managers are expected to have cash financing that will justify them pursuing excessive CSR strategies (Al-Shaer et al., 2023).

Companies' investment decisions regarding their participation in CSR activities depend significantly on having sufficient cash levels. For this reason, it seems that companies with abundant cash resources can invest more easily in CSR activities. Therefore, firms with abundant financial resources are likely to join in excessive CSR activities. In this regard, the following H2 hypothesis is developed with the assumption that if companies have an intense cash flow, it is possible for them to participate in excessive CSR activities, and this will be welcomed by investors.

H_2: The connection between excessive CSR and firm value is positively affected by cash flows.

Nowadays, it is more important for companies to adjust their cash positions by anticipating future risks in terms of corporate governance and sustainability. For this reason, the H2 hypothesis is developed in the research as to whether cash flows have a moderating effect on the connection between CSR activities and firm value.

3. Research Methodology

In the methodology section, which includes details about the method used in the research, the variables, and the equations in which the hypotheses will be examined, the findings of the pre-tests regarding the analysis determined are also included.

3.1. Research Method, Sample and Variables

The research focuses especially on companies with ESG scores in Türkiye to determine the effect of cash flows on the relationship between CSR and firm value. In line with the purpose of the research, the sample is created by using judgmental sampling. In this context, companies with ESG scores in the 2010-2021 period were determined. Holdings and financial institutions are externalized from the sample to create the research sample from non-financial sectors. By eliminating the samples with missing data, the final sample number is determined to be 16 companies. The data for the research sample was obtained using the Refinitiv Eikon

database and the Public Disclosure Platform (KAP). Variables covering the research's ESG scores and financial data in general were created with data obtained from the Refinitiv Eikon database. Corporate governance variables were created by collecting data published through the Public Disclosure Platform (KAP).

In the research, company data is created, considering the years 2010–2021. Since sample data includes time and cross-section, panel data analysis is utilized as a research method. In the research, try to reach accurate analysis results by performing the necessary preliminary tests in accordance with panel data analysis.

The research is carried out in three stages. First, model 1 is used to determine optimal and excessive CSR indicators. The research is carried out in three phases. First, model 1 is used to determine optimal and excessive CSR indicators. The optimal and excessive CSR levels obtained using Equation 1 are determined as independent variables for the second-level equations. The ESGpre variable created according to the optimal CSR levels obtained from the first equation is used in Equation (2a), and the ESGres variable created according to excessive CSR levels is used in Equation (2b). Thus, basic models are analyzed with optimal and excessive CSR variables estimated according to the equation used in the first stage. The models (1), (2a), and (2b) used to make predictions in the research can be shown as follows:

$$ESG_{i,t} = \beta_0 + \beta_1 CASH_{i,t} + \beta_2 EBITDA_{i,t} + \beta_3 NPM_{i,t} + \beta_4 DEBT_{i,t} + \beta_5 BINDP_{i,t} + \beta_6 MB_{i,t} + \beta_7 FSIZE_{i,t} + \beta_8 ATR_{i,t} + \varepsilon_{i,t} \tag{1}$$

$$TOB\dot{I}NS\ Q_{i,t} = \beta_0 + \beta_1 ESGpre_{i,t} + \beta_2 ROA_{i,t} + \beta_3 BSIZE_{i,t} + + \beta_4 BINDP_{i,t} + \beta_5 FFLOT_{i,t} + \beta_6 CRATIO_{i,t} + \beta_7 LEVR_{i,t} + \varepsilon_{i,t} \tag{2a}$$

$$TOB\dot{I}NS\ Q_{i,t} = \beta_0 + \beta_1 ESGres_{i,t} + \beta_2 ROA_{i,t} + \beta_3 BSIZE_{i,t} + + \beta_4 BINDP_{i,t} + \beta_5 FFLOT_{i,t} + \beta_6 CRATIO_{i,t} + \beta_7 LEVR_{i,t} + \varepsilon_{i,t} \tag{2b}$$

The third phase of the research is carried out to determine whether cash flows have a moderating effect on the link between CSR and firm value. The equation (3) created for this stage can be shown as follows:

$$Y_{i,t} = \beta_0 + \beta_1 X_{1i,t} + \beta_2 M_{i,t} + \beta_3 (X_{1i,t} * M_{i,t}) + \beta_4 X_{2i,t} + \varepsilon_{i,t} \tag{3}$$

The dependent variable represented by the term "$Y_{i,t}$" is the TOBINQ variable in Equation (3). The independent variables ESGpre and ESGres are denoted by the term "$X_{1i,t}$" in the equation (3). The CASH variable added to the equation to measure the moderating effect of cash flows is denoted by the term "$M_{i,t}$" The term "$X2_{i,t}$" refers to the control variables as ROA, BSIZE, BINDP, FFLOT, CRATIO, and LEVR.

ESG scores obtained from the Refinitiv Eikon database are used as a CSR indicator in the research. The activities carried out by businesses within the scope of social responsibility are grouped into environmental, social, and management purposes. Therefore, ESG scores are the sum of percentage points scaled between 0-100 regarding activities carried out for environmental, social, and governance purposes.

Table 1: Variable Definitions Used in the Research

Symbol	Variable Definitions	
Equation (1)		**Source**
ESG	ESG performance score	RE
CASH	Ratio of cash and cash equivalent assets to total assets	RE
EBITDA	Ratio of income before interest, taxes, and depreciation to total assets	RE
NPM	Ratio of net revenues to net sales	RE
DEBT	Ratio of total debts to total assets	RE
BINDP	Ratio of independent board members to total members	RE
MB	Ratio of market value to total equity capital	RE
FSIZE	Logarithm of total assets	RE
ATR	Net sales to total assets ratio	RE
Equation (2)		
TOBIN Q	The ratio of the sum of market value and total debt to total assets	RE
ROA	Ratio of income before interest and tax to total assets	RE
BSIZE	Total number of board members	RE
BINDP	Ratio of independent board members to total members	KAP
FFLOT	Free float percentage of shares	RE
CRATIO	Ratio of current assets to short-term liabilities	RE
LEVR	Ratio of total liabilities to total assets	RE
ESGpre	Predicted ESG score according to Equation (1)	RE
ESGres	ESG residual values based on Equation (1)	RE

Notes: The abbreviations used in the text indicate the data sources: RE, Refinitiv Eikon was created with data from Refinitiv Eikon; KAP was created with the data of the Public Disclosure Platform [Türkiye].

The definitions of research variables utilized in Phases 1,2 and 3 of the research are shown in Table 1. Phase 1 is designed to estimate optimal and excessive CSR, while Phase 2 is designed to test basic research hypotheses. Accordingly, research variables consist of two main groups. The first set of variables is used in Equation (1) to state optimal and excessive CSR. In Equation (2), the second group of variables is included. The optimal and excessive CSR levels obtained by the analysis of Equation (1) performed in the first stage are estimated. In the second stage of the research, the effects on firm value are examined by using the ESGpre variable for the optimal CSR level and the ESGres variable for the excessive CSR level. The research continues with Equation (3) to measure the effect of cash flows at optimal and excessive CSR levels regarding the TOBINQ variable, determined as firm value.

3.2. Summary Statistics

This section includes the research findings obtained through panel data analysis. Descriptive statistical information about the variables used in the research is given in Table 2.

Table 2: Descriptive Statistics

Variables	Mean	Std. Dev.	Min.	Max.
Equation (1)				
ESG	51.44832	20.074050	10.85	94.81
CASH	0.128257	0.1005969	0.0015	0.40212
EBITDA	6.324375	0.4042675	5.5162	7.43901
NPM	1.361229	5.6279560	-0.9453	48.7739
DEBT	0.316424	0.1625281	0	0.70156
BINDP	0.312366	0.1421996	0	0.86
MB	14087.30	9906.7790	929.36	66009.9
FSIZE	7.220492	0.4078009	6.1373	8.5484
ATR	0.987145	0.9527315	0	4.7925
Equation (2)				
TOBIN Q	0.978064	0.908611	0.07816	6.20936
ROA	8.991146	5.065527	-6.13	29.69
BSIZE	0.965209	0.123217	0.69897	1.17609
BINDP	0.312367	0.142197	0	0.86
FFLOT	0.440208	0.216821	0.13	1
CRATIO	1.657290	0.752186	0.65583	5.41169
LEVR	0.569285	0.154852	0.19834	0.87248
ESGpre	149.0157	56.99276	32.9924	251.846
ESGres	-102.6586	64.62792	-237.896	19.1683

Table 2 shows that the lowest ESG score is 10.85 and the highest is 94.81. Cash retention rates are around 0.40 at most. Additionally, Table 2 shows that the rate of having the highest number of independent members on boards of directors is 0.86.

Pearson correlation findings applied to examine the level of relationship between research variables are given in Table 3.

In the correlation findings given for Equation (1) and Equation (2) in Table 3, it can be seen that there is generally no high level of relationship. Additionally, it shows the negative relationship between board size and the ratio of current assets to short-term liabilities and firm value. The findings indicate that although the free float percentage has a positive relationship with firm value indicators, it has a negative relationship with the size of the board of directors.

Table 3: Pearson Correlation Analysis

Variables	Equation (1)								
	1	2	3	4	5	6	7	8	9
1 ESG	1.000								
2 CASH	0.3485*	1.000							
3 EBITDA	0.1588**	-0.0226	1.000						
4 NPM	-0.2449*	-0.0315	-0.0977	1.000					
5 DEBT	0.3613*	0.0820	0.1454**	-0.3152*	1.000				
6 BINDP	0.2306*	0.1747**	0.1848**	0.1048	-0.0565	1.000			
7 MB	0.1055	0.0958	0.6290*	-0.1805**	-0.1061	0.3187*	1.000		
8 FSIZE	0.2405*	0.0167	0.7096*	0.0153	0.1303***	0.3309*	0.5525*	1.000	
9 ATR	-0.0297	-0.0559	-0.1778**	-0.2388*	-0.2560*	-0.1402***	0.0618	-0.4214*	1.000

Variables	Equation (2)							
	1	2	3	4	5	6	7	8
1 TOBIN Q	1.000							
2 ROA	0.5252*	1.000						
3 BSIZE	-0.1908*	-0.0433	1.000					
4 BINDP	-0.0685	-0.0484	-0.1539**	1.000				
5 FFLOT	0.2641*	0.1284***	-0.1465**	-0.1741**	1.000			
6 CRATIO	-0.2147*	-0.0725	-0.2627*	0.1382***	-0.0599	1.000		
7 LEVR	0.0603	0.0328	0.4487*	-0.1543**	0.0542	-0.5994*	1.000	
8 ESGpre	-0.3438*	-0.1327***	-0.0499	0.1406***	-0.1107	-0.0443	0.2817*	1.000
9 ESGres	0.2778*	0.0634	0.1654**	-0.0771	0.0852	0.0240	-0.2063*	1.000

Following the findings of the research descriptive statistics and correlation relationship, the necessary preliminary tests for panel data analysis are carried out. At this stage, all equations were subjected to variance inflation factor-VIF analysis to identify whether there was a multicollinearity problem between the independent variables. In general, it is determined that there is no linear connection problem since the VIF value is seen to be low in all research equations. Additionally, the modified Wald test is applied in the research to determine the existence of a heteroscedasticity problem. Durbin Watson and Baltagi Wu LBI tests are used for autocorrelation tests related to the research. Pesaran Scaled LM, Pesaran CD, and Breusch Pagan LM tests are used to check cross-sectional dependency.

Table 4: Heteroskedasticity, Autocorrelation, and Cross-Section Test Results

	Equation (1)		Equation (2a)		Equation (2b)	
Heteroscedasticity Test	**Statistical Value**	**Probability Value**	**Statistical Value**	**Probability Value**	**Statistical Value**	**Probability Value**
Modified Wald Test	321.24	0.0000	4919.96	0.0000	4764.68	0.0000
Cross Section Dependency Tests	**Statistical Value**	**Probability Value**	**Statistical Value**	**Probability Value**	**Statistical Value**	**Probability Value**
Pesaran CD	4.292901	0.0003	4.417247	0.0000	3.715202	0.0000
Breusch Pagan LM	235.0480	0.0000	194.6108	0.0000	200.8540	0.0000
Pesaran Scaled LM	7.426318	0.0000	4.816107	0.0000	5.219105	0.0000
Autocorrelation Tests	**Statistical Value**		**Statistical Value**		**Statistical Value**	
Bhargava et al. Durbin Watson	0.71209756		0.54976606		0.55302816	
Baltagi Wu LBI	1.0478355		0.8358013		0.83703958	
Multiple Linear Connection Test	**Statistical Value**		**Statistical Value**		**Statistical Value**	
Variance Inflation Factor (VIF)	1.83		1.45		1.42	

4. Findings and Discussion

In the pre-tests regarding the basic equations of the research, the existence of heteroscedasticity, autocorrelation, and cross-section dependence problems were determined. Considering the problems identified in the research, estimation is made using the Driscoll-Kraay (1998) estimator, which is resistant to heteroscedasticity, autocorrelation, and inter-unit correlation. The research findings estimated with the Driscoll-Kraay robustness estimator are shown in Table 5.

Table 5 presents the analysis findings on the relationship between optimal and excessive CSR and firm value. The dependent variable (TOBIN Q) used in the research is firm value, which represents total assets over market value and total debt. To measure financial performance, Tobin's Q value was used as a representative value as a market-based performance measure in this research, rather than accounting-based performance measures. Since the research focuses directly on investor interest, Tobin's Q value, which takes market value into account as a financial performance measure, is included in the research. Widely used as a performance measure in the fields of economics, finance, and strategy, Tobin's q indicates how much value the firm creates with its assets (Morck et al., 1988; Waddock & Graves, 1997). In the literature, Tobin's Q value appears to be a preferred measure of financial performance because it reflects the ability of companies to create value and is a market-based performance measure (Servaes & Tamayo, 2013; Al-Shaer et al., 2023).

Table 5: Findings of the Connection Between Optimal and Excessive CSR and Firm Value

Dependent Variable: TOBIN Q
Horizontal Section: 16
Time Section: 2010-2021
Total Number of Observations: 192
Method: Driscoll-Kraay Standard Error

Independent Variables	Equation (2a)			Equation (2b)		
	Coefficient	Driscoll-Kraay Standard Error	t-Statistic Value	Coefficient	Driscoll-Kraay Standard Error	t-Statistic Value
ESGpre	-0.0055343	0.0016197	-3.42*** (0.006)			
ESGres				0.0045685	0.0015075	3.03** (0.011)
ROA	0.0781265	0.0095006	8.22*** (0.000)	0.0822328	0.0099267	8.28*** (0.000)
BSIZE	-2.136011	0.7287133	-2.93** (0.014)	-2.357141	0.8333343	-2.83** (0.016)
BINDP	0.1665238	0.3051233	0.55 (0.596)	-0.0275272	0.267931	-0.10 (0.920)
FFLOT	0.4711893	0.2166419	2.17* (0.052)	0.467008	0.2156781	2.17* (0.053)
CRATIO	-0.204728	0.0451036	-4.54*** (0.001)	-0.2199966	0.0479305	-4.59*** (0.001)
LEVR	0.9980871	0.4619152	2.16* (0.054)	0.8205823	0.3977847	2.06* (0.064)
cons	2.02753	0.666083	3.04** (0.011)	2.683295	0.7798775	3.44** (0.006)
F test	131.54 (0.000)			238.88 (0.000)		
R²	0.4779			0.4693		

Note: '***, ** and *' signs indicate statistical significance at the 1%, 5% and 10% level, respectively.

The optimal and excessive CSR levels determined by Equation (1), where ESG scores are used, are used in the basic equations to investigate their effects on firm value. According to Table 5, it is seen that optimal CSR levels have a significant negative effect on firm value. It has been determined that excessive CSR levels have a positive and significant effect on firm value. For this reason, the H hypothesis that CSR level affects firm value is accepted in the research. The findings reveal the existence of a statistically significant relationship between ROA, FFLOT, and LEVR variables that positively affects the TOBIN Q dependent variable. In addition, the findings reveal the significant negative effect of BSIZE and CRATIO on firm value. In the research, R2 values explain the connection between the optimal CSR level at 47.79% for Equation (2a) and the excessive CSR level at 46.93% for Equation (2b) and firm value.

The findings of Equation (3), which was created to determine the moderating effect of the CASH variable at the last stage of the research, are shown in Table 6.

Table 6: Analysis Findings Regarding the Moderating Effect of Cash Flows

Dependent Variable: TOBIN Q
Horizontal Section: 16
Time Section: 2010-2021
Total Number of Observations: 192
Method: Driscoll-Kraay Standard Error

Independent Variables	Equation (3a)			Equation (3b)		
	Coefficient	Driscoll-Kraay Standard Error	t-Statistic Value	Coefficient	Driscoll-Kraay Standard Error	t-Statistic Value
ESGpre	-0.0069795	0.0010512	-6.64*** (0.000)			
ESGpre* CFLOW	0.0074272	0.0097288	0.76 (0.461)			
ESGres				0.0063475	0.0010721	5.92** (0.000)
ESGres* CFLOW				-0.0133444	0.0058967	-2.26** (0.045)
CFLOW	0.1446314	2.28987	0.06 (0.951)	-0.629327	1.221314	-0.52 (0.617)
ROA	0.077931	0.0090851	8.58*** (0.000)	0.0825715	0.010537	7.84*** (0.000)
BSIZE	-2.236843	0.7305708	-3.06** (0.011)	-2.452075	0.8737057	-2.81** (0.017)
BINDP	0.0826695	0.2077219	0.40 (0.698)	-0.0783461	0.1860132	-0.42 (0.682)
FFLOT	0.464507	0.1820349	2.55* (0.027)	0.4326752	0.185895	2.33** (0.040)
CRATIO	-0.2478829	0.0601133	-4.12*** (0.002)	-0.2559989	0.0624727	-4.10*** (0.002)
LEVR	0.9558795	0.445218	2.15* (0.055)	0.7558653	0.3953946	1.91* (0.082)
cons	2.942561	0.6120577	4.81*** (0.001)	2.977481	0.7810943	3.81*** (0.003)
F test	209.55 (0.000)			387.95 (0.000)		
R²	0.5015			0.4877		

Note: '***, ** and *' signs indicate statistical significance at the 1%, 5% and 10% level, respectively. The excessive CSR proxies generated from ESG are ESG-res (residual ESG based on Eq. (1),). 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.

Table 6 includes the findings of Equation (3) used regarding the moderating effect of cash flows on CSR behaviors and firm value. The findings of Equation 3, used on the effect of cash flows on firm value in optimal and excessive CSR cases, indicate the positive and significant effect of cash flows on the firm level, especially at excessive CSR levels. Therefore, the H2 hypothesis that cash flows positively moderate the relationship between excessive CSR and firm value was accepted. The findings support that cash flows positively moderate the relationship between firm value and CSR at excessive levels. However, there is no significant relationship between cash flows and the impact of optimal CSR levels on firm value.

5. Conclusion and Recommendations

The research focuses on companies with determined ESG scores in Türkiye to determine the impact of cash flows on CSR levels and firm value. The research sample consists of companies whose ESG score was calculated in the 2010–2021 period. Since the data of the companies included in the sample includes time and cross-section, panel data analysis is used as the research method. In the research, necessary preliminary tests are carried out in accordance with panel data analysis, and analysis is carried out with the Driscoll-Kraay Standard Error estimator.

While ESG scores obtained from the Refinitiv Eikon database are used as a CSR indicator, the TOBINQ value, representing company value, is included in the research. In addition to the CASH variable as a cash flow indicator, variables such as asset return rate, leverage ratio, current ratio, board size, board independence, and free float ratio are also included in the equations. In addition, in line with the purpose of the research, the optimum and excessive CSR variables determined by Equation (1) are used in the basic equations.

While optimal CSR levels have a negative and significant effect on firm value, excessive CSR levels have a positive and significant effect on firm value. The research results showing the negative impact of optimal CSR levels on firm value support agency theory. This result confirms agency theory by showing that high costs caused by CSR activities reduce firm value (Ahmad et al., 2021; Barnett, 2007; Friedman, 1970; Greening & Turban, 2000). It confirms the Duque-Grisales & Aguilera-Caracuel, 2019 research showing that companies with good ESG scores tend to be less profitable. It also supports the findings of Lee et al., 2009, which revealed that there is a negative relationship between CSR and firm performances, according to market-based review results. The results showing that excessive CSR levels positively affect firm value support the stakeholder theory. The results support the research findings revealing a positive connection between CSR and firm value (Alparslan & Aygün, 2013; Bajic & Yurtoglu, 2018; Daştan & Bellikli, 2015; Fettahoğlu, 2013; Poroy-Arsoy et al., 2012; Özer et al., 2023). ROA, FFLOT, and LEVR variables positively affect firm value. BSIZE and CRATIO variables negatively affect the company's value.

The findings of the analyses conducted to determine the moderating effect of cash flows on firm value in optimal and excessive CSR situations show that cash flows positively moderate the relationship between excessive CSR and firm value. As a result of this positive research, it is stated that companies with intense cash flow may focus on more CSR activities and investors will be rewarded for these CSR activities. The positive effect of cash flows regulating firm value in optimal and extreme CSR situations supports both stakeholder theory and financial

slack theory. The regulatory effect of cash flow and shareholders' approval of excessive CSR participation require firms to have large amounts of funds (Al-Shaer et al., 2023; Cheng et al., 2014; Islam et al., 2021). Because the realization of these optional environmental activities depends on companies having plenty of free funds (McGuire et al., 1990).

The research aims to contribute to the gap in the literature on CSR levels and firm value regarding cash flows. The research emphasizes the moderating role of cash flows in the connection between CSR levels and firm value. For this purpose, firstly, excessive and optimal CSR levels are determined, and the effectiveness of cash flows in terms of CSR activities is examined. The low number of companies with ESG scores in Türkiye is an important limitation in terms of the research sample, and the literature on expanding the sample can be developed in future studies. The results of this research offer important implications to companies regarding the development of ESG activities and environmental investments. Today, it is seen that non-financial activities have the capacity to affect company value and their reporting is also very important. Therefore, companies need to increase their efforts in environmental activities and make the necessary investments to provide significant competitive advantages in the future. Policy makers' rapid adoption of regulations that will encourage companies to engage in environmental activities will make significant contributions to the country's economy and sustainability.

The research findings provide evidence to support corporate management's focus on CSR activities. In terms of future research focusing on the relationship between CSR and firm value, it would be useful to consider the effects of factors such as firms' cash levels, risk elements, and borrowing costs. In the future studies on CSR and firm value can be developed with variations such as comparisons of investment levels, firm size, sector and country levels, as well as cash flows. Additionally, future studies could examine whether shareholders reward excessive CSR engagement during crisis periods or the possible roles of internal and external governance mechanisms.

Conflict of Interest

No potential conflict of interest was declared by the author.

Author Contributions

The author confirms sole responsibility for the following: research conception and design, data collection, analysis and interpretation of results, and manuscript preparation.

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