▪ Advances in Scientific and Applied Accounting, ▪ ISSN 1983-8611 ▪ São Paulo ▪ v.17, n.3 ▪ p. 139-151 ▪ Sep. / Dec. 2024
▪ DOI: 10.14392/asaa.2024170306

Analysis of the Influence of Corporate Social Responsibility on Dividend Payments in the Brazilian Context

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Edited by:
Moacir Manoel Rodrigues Junior

Abstract

Objective: This study investigated the influence of Corporate Social Responsibility (CSR) on dividend payments within the Brazilian context. The research aimed to address how CSR practices, measured by the Environmental, Social, and Governance (ESG) score, impact the dividend distribution of companies listed on the Bolsa, Brasil e Balcão - B3.

Method: To analyze this relationship, a descriptive and documentary quantitative analysis was conducted using a sample of 136 companies over the period from 2012 to 2022. Ordinary Least Squares regressions were employed, with payout, total dividends, and dividend yield as independent variables, and their relationships with eight dependent variables were examined.

Results: The findings indicate that companies with greater engagement in CSR practices, as reflected by higher ESG scores, exhibit a more robust dividend policy. A positive and significant correlation was observed between ESG scores and the Total Dividend and dividend yield indicators, although the relationship with payout was positive but not statistically significant. Furthermore, it was found that for each unit increase in the ESG score, there is an estimated increase of 1.465 in total dividends and 0.4 in dividend yield.

Contributions: These findings contribute to the literature on corporate governance and finance by highlighting the importance of CSR in the stability of dividend distribution and in stakeholder relationships, offering insights for managers and investors regarding the impact of sustainability on corporate financial decisions.

Keywords: Corporate Social Responsibility; Dividends; Stakeholders.

How to Cite:

Segundo, A. P. L., Callado, A. L. C., & da Silva Júnior, C. P. (2024). Analysis of the Influence of Corporate Social Responsibility on Dividend Payments in the Brazilian Context. *Advances in Scientific and Applied Accounting*,17(3), 125–138/139. https://doi.org/10.14392/asaa.2024170306

Submitted: 30 July 2024
Revisions required on: 06 March 2025
Accepted: 31 March 2025

Introduction

The topic of Corporate Social Responsibility (CSR) has been studied for several decades by authors such as Carroll (1979) and Wood (1991), with its impacts—whether positive or negative—being perceived by all involved stakeholders. According to Parket and Eibert (1975), the benefits derived from fulfilling CSR outweigh the costs, increasing the company's value. In this regard, adhering to CSR by safeguarding employee well-being can enhance productivity, strengthen the company's image, and boost public trust, thereby leading to greater organizational competitiveness.

Still from an affirmative perspective, Cornell and Shapiro (1987) suggest that strong social performance leads to more significant financial outcomes. By enhancing their reputation, companies can reduce business risk and gain greater respect from regulatory authorities, which attracts investment and meets the expectations of various stakeholders, positively impacting financial performance. Moreover, investments in CSR lower operational costs and contribute to sustainable development (Dey & Sircar, 2012; Jamali & Mirshak, 2007). Fauzi (2008) also indicated that CSR compliance is positively correlated with company revenue, sales, and the maintenance of long-term gross profitability.

Seth and Mahenthiran (2022) argue that, in emerging economies, companies adopting CSR practices send a positive signal to investors, indicating a greater ability to address institutional voids, which influences CSR performance, firm value, and dividend distribution. Institutional voids refer to the absence or underdevelopment of institutions that enable and support market activity (Khanna & Palepu, 1997).

According to Friedman (1970), the primary social responsibility of companies is to maximize firm value for shareholders. With the resource scarcity driven by technological advancements, companies, given the scale of their operations, must undertake actions benefiting stakeholders, including the environment and society.

Stakeholders, including investors, society, government, customers, and companies, have increasingly attributed importance to CSR practices. From a theoretical perspective, there is a line of thought asserting that socially responsible companies can achieve more stable and higher financial results in the long term (Kempf & Osthoff, 2007; Mutezo, 2014; Rajput et al., 2012; Yusoff & Adamu, 2016).

Previous research has sought to analyze whether social or sustainable activities impact the financial performance of securities (Seth & Mahenthiran, 2022; Sondakh, 2019; Wang & Chen, 2017). Consequently, when allocating resources, investors may prioritize socially responsible companies, aiming for stable and secure returns in the long term.

Furthermore, during times of economic crisis, CSR can mitigate negative impacts. Seth and Mahenthiran (2022) argue that CSR influences dividend policy, serving as a financial indicator for the market and shareholders. According to Benlemlih (2019), it is crucial to understand how and to what extent CSR affects wealth distribution.

According to Cheung et al. (2018) and Matos et al. (2020), despite the growing literature on sustainability and ESG, there is still limited evidence regarding the effects of ESG performance on dividend payment capacity and related corporate decisions.

Given this scenario, it becomes essential to examine whether CSR influences the profit distribution of corporations. Thus, this research aimed to address this gap and contribute new evidence regarding the relationship between CSR and dividend payments. Considering the importance of dividend policies for corporate finance and the growing interest in ESG, this study sought to analyze how the CSR of Brazilian companies affects their dividend policy, particularly regarding the payment and stability of dividends for companies listed on the B3. For the literature, this research contributes by providing new insights into the effects of CSR on dividend policies in Brazil, a context that remains underexplored within this theme.

Regarding practical contributions, the results of this study will assist managers of Brazilian companies in identifying, through ESG scores, the extent to which CSR can affect the payment and stability of dividends. This will enable them to balance the company's interests with corporate social responsibility considerations, guiding dividend distribution.

Based on the findings obtained, managers will be able to develop strategies focused on CSR practices to attract investors interested in dividend distribution. Additionally, the study may encourage managers to integrate sustainability practices into their capital allocation decisions, reinforcing the relevance of ESG in corporate finance.

For society, this research contributes by highlighting the need for stricter regulations on the disclosure of CSR practices, as measured by ESG scores. Such regulations, audited by specialized consultancies, can generate positive internal and external impacts, improving employee conditions, encouraging social initiatives, and minimizing the environmental impacts of business activities.

The relevance of this research is heightened by the particularities of the Brazilian capital market, which adopts distinct rules for profit distribution, such as tax exemptions on dividends and the existence of interest on equity. These factors make Brazil a unique case for analysis, as they contrast with dividend policies in countries like the United States, India, and China, where taxes on profit distribution are more prevalent. Thus, understanding how CSR influences dividend payments in Brazil is essential to provide insights for both managers and policymakers, offering a clearer perspective on the impacts of sustainable practices on corporate finance.

Furthermore, research on the influence of CSR on financial decisions typically employs indicators such as sustainability indices and accounting variables (ROA, ROE), but dividend payment policy has been underexplored as a financial performance factor. International studies by Cheung et al. (2018) and Benlemlih (2019) examined this relationship in the U.S. market, but their findings cannot be directly applied to Brazil due to regulatory and institutional differences. Given this gap, this research aims to contribute to the literature by empirically investigating how CSR impacts the dividend policies of Brazilian companies, providing new evidence for the debate on sustainability and finance within the national context.

In addition to this introduction, this article is structured into four sections. The second section presents the theoretical framework. The third section details the methods and procedures adopted in the study. The fourth section covers the analysis, exploration of the data, and interpretation of the results. Finally, the study's conclusions are presented, followed by recommendations for future research and the references used.

2 Theoretical Framework

2.1 Corporate Social Responsibility

Discussions about CSR date back to the mid-20th century and are well-established. Two seminal concepts mark the literature on this topic. The first, proposed by Carroll (1979), structures CSR into four dimensions: economic responsibility, legal responsibility, ethical responsibility, and the integration of philanthropic components tied to operational processes. This model was incorporated into the concept of Corporate Social Performance (CSP). The second, by Wood (1991), presents CSR within a broader framework, emphasizing principles that guide corporate responsibility, the processes of responsiveness, and the outcomes of performance.

Several studies indicate that companies adopting good CSR practices tend to exhibit better financial performance in the long term (Doh et al., 2010; Godfrey et al., 2009; Usman & Amran, 2015; Van Beurden & Gössling, 2008; Walsh et al., 2003; Wang & Chen, 2017; Wang & Sarkis, 2017; Wood, 2010).

CSR practices represent responsible actions taken by companies toward their stakeholders, both internal—such as board members, directors, and employees—and external, including customers, suppliers, society, and the environment (Blasi et al., 2018).

CSR is linked to sustainable business strategies, contributing to the creation of competitive advantages in economic, social, and environmental domains (Martinez-Conesa et al., 2017). Lin et al. (2009) demonstrated that companies engaged in CSR benefit from the positive environments they foster. In this sense, CSR enables not only profit generation for shareholders but also greater commitment to other stakeholders, promoting a balance between economic growth, social responsibility, and environmental preservation (Galant & Cadez, 2017).

Therefore, the way an organization interacts with its stakeholder groups (customers, suppliers, and the community) can influence its activities (Freeman & Phillips, 2002). A strong relationship with these groups can contribute to achieving better results and, consequently, to dividend distribution.

Although most CSR research has been conducted in developed countries, there is a growing demand for studies in the context of developing countries, where the disclosure of CSR indices has become increasingly relevant to provide transparent information about the social, environmental, and economic activities and impacts of companies.

This emphasis on corporate social responsibility not only benefits stakeholders but can also influence corporate dividends. The adoption of CSR practices can enhance reputation and investor confidence, attracting capital and potentially leading to improved financial performance.

Thus, by incorporating CSR into their strategies and operations, companies can aim for not only positive societal impacts but also sustainable financial rewards, such as more attractive dividends for shareholders.

2.2 Dividend Theory

When companies distribute dividends, they are communicating an important fact to the market while simultaneously meeting the expectations of their shareholders. On the other hand, the non-distribution of dividends draws shareholders' attention to the company's future strategies, as it suggests the company is withholding dividends for some reason. Dividends, in turn, are significant because they carry substantial informational

value for investors. They signal that the company is confident in its decision to distribute profits to shareholders without necessarily jeopardizing its future investments.

Investors can distinguish between two companies with high profits—identifying which one has more solid or abnormal earnings—by analyzing their dividend policies (Ben Naceur et al., 2006; Brealey et al., 2008). An increase in distributed dividends may indicate that management believes in the company's robust performance, and this distribution sends signals to the market from the perspective of signaling theory.

Lintner (1956) states that shareholders prefer dividend stability and that the market offers a prize for the stocks of companies that exhibit stable or gradually increasing dividend rates. Furthermore, Lintner (1956) observed that current earnings are invariably the starting point for managers when determining the timing of dividend adjustments. He also found in his studies that managers of U.S. firms used dividends as a signaling tool to indicate the sustainability of profit growth.

Studies on dividend policy conducted in Brazil require specific considerations due to the tax system applied to dividends and the concept of interest on equity, which provides companies with distinct tax options for profit distribution (Forti et al., 2015). Similarly, in Brazil, there are also mandatory minimum dividends, which can influence the dividend payment levels of companies due to legal requirements.

Proponents of the Dividend Relevance Theory argue that this policy can maximize firm value, a view disseminated by Durand (1959), Lintner (1956, 1962), and later by Gordon (1959). Both provide arguments and evidence that dividend policy is not irrelevant to asset pricing or the cost of capital.

Conversely, there is the Dividend Irrelevance Theory, proposed by Miller and Modigliani (1961). According to these authors, assuming a perfect market, dividend payments are irrelevant because they do not affect the firm's value.

Dividend payments, in turn, can serve as a signal (Signaling Theory) of a company's strong future performance (Benlemlih, 2019; Bhattacharya, 1979; Forti et al., 2015). An increase in dividend payments may signal a rise in the company's future earnings and the potential issuance of new shares, factors associated with stock appreciation (Tao et al., 2016).

Signaling theory can provide a robust theoretical foundation to explain the value of CSR disclosures. Hou et al. (2016) suggest that CSR disclosures offer information about a company's unobservable and intangible attributes, which serve to influence stakeholders, including customers, suppliers, and the government.

Studies suggest that Signaling Theory can integrate Agency Theory, Stakeholder Theory, and the resource-based view (Zerbini, 2017). Su et al. (2014) found evidence that companies adopting CSR practices send positive signals to investors about their ability to address institutional gaps. McWilliams and Siegel (2001) and Orlitzky et al. (2003) reinforce that CSR can contribute to corporate performance, particularly in emerging economies. Seth and Mahenthiran (2022) highlight that, alongside dividends, CSR serves as a strategic signal used by the boards of directors of companies listed on the Indian stock exchange to convince institutional investors of their sustainability and future performance. Thus, Signaling Theory underscores the importance of corporate communication, whether through dividend distribution or the adoption of sound CSR practices.

2.3 CSR, wealth creation, and dividend policy

DeAngelo and DeAngelo (2006) demonstrate that, even within the Miller-Modigliani framework, dividend policy holds relevance, with the ideal scenario being that companies distribute the total present value of their free cash flow. From a life cycle perspective, nascent companies tend to allocate more resources to investments than their cash generation capacity allows, which prevents profit distribution at this stage. On the other hand, as these companies achieve their structured objectives, they begin to generate excess cash and distribute dividends consistently.

Brav et al. (2005) assert that maintaining dividend payout levels remains a priority for managers, who exhibit a strong desire to avoid cuts except under extraordinary circumstances. Nevertheless, out of prudence, dividend increases are considered only after necessary investments have been made and liquidity is ensured. Therefore, it is unlikely that companies would reduce dividends to increase their investments in CSR.

Su et al. (2014) found evidence that companies adopting CSR practices send positive signals to investors, demonstrating a greater capacity to address institutional voids. According to Khanna and Palepu (1997), these voids refer to the absence or underdevelopment of institutions that provide efficient support for market activity. In this context, CSR can serve as a mechanism for strengthening institutional frameworks, fostering greater trust among investors and other stakeholders.

Similarly, Rakotomavo (2012), in his seminal study, found that investments in CSR do not reduce expected dividends. This author states that companies making substantial

investments in CSR (with above-average scores) tend to be larger, both in terms of sales and book value. Additionally, they are more profitable (considering return on equity and return on assets), use more debt (relying less on equity and benefiting from a better cost of capital), retain more earnings, and distribute higher dividends.

Business activities considered social and sustainable practices must, in some way, be communicated to society. In certain regulated sectors, legal requirements mandate the demonstration of such actions. However, beyond regulatory obligations, it is essential for corporations to adopt these practices voluntarily, ensuring that effective actions are implemented not merely in response to institutional pressures.

As the primary objective of a company is profit generation, it is expected that resources invested in CSR will yield returns, even if in the long term. According to Hart and Milstein (2004), creating shareholder value depends on the company's ability to transform its current competencies into sustainable innovations for the future.

Regarding dividend payments, Cheung et al. (2018) found evidence that companies with higher CSR scores tend to exhibit a higher dividend payout ratio. However, they found no evidence that the decision to pay dividends or not is determined by CSR scores.

Benlemlih (2019) argues that higher dividend payments play a controlling role over a company's donation strategy, which explains the positive effects of social performance on dividend payments.

Evidence in the literature confirms the positive influence of CSR investments on dividend payments. Samet and Jarboui (2017) found that environmental performance has a positive and significant effect on the level of dividend payments. Benlemlih (2019) also demonstrated a positive and significant relationship between CSR scores and dividend payments. Furthermore, Zadeh (2020) showed that CSR performance, particularly in the environmental dimension, positively influences dividend policy.

On the other hand, Trihermanto and Nainggolan (2020) found evidence that CSR expenditures related to environmental issues have positive but insignificant effects on corporate dividend payments. Salah and Amar (2022) determined that individual CSR components exert a positive influence on dividend policy. However, the relationship between CSR in the environmental aspect and dividend payments showed a positive coefficient, though statistically insignificant, as also evidenced by Trihermanto and Nainggolan (2020).

Given the divergent results found in the literature and based on Stakeholder Theory (Freeman, 1984), it is expected that companies engaged in environmental practices distribute more dividends to their shareholders (Salah & Amar, 2022). According to Trihermanto and Nainggolan (2020), companies investing in CSR are in the maturity phase of their life cycle. Corporate social and charitable donations increase as companies become more mature and larger in value and size. Furthermore, the robust evidence from Trihermanto and Nainggolan's (2020) findings provides strong support that corporate CSR expenditures positively influence dividend policy.

Matos et al. (2020) argue that companies with higher scores in Environmental, Social, and Governance (ESG) criteria tend to exhibit better alignment with stakeholders' interests, reflecting this harmony in the stability of profit distribution. Thus, ESG practices directly influence the consistent payment of dividends.

In summary, the topics covered in this section highlight the importance of balancing stakeholders' interests and the magnitude and quality of strategic information disclosure. Dividend payments and the publication of corporate ESG indicators serve as a basis for understanding the correlation between corporate social responsibility (CSR) and dividend distribution.

3 Methodology

3.1 Population and Sample

The research population consisted of publicly traded companies listed on the Bolsa, Brasil e Balcão - B3 over the period from 2012 to 2022. To define the sample, the criteria from the studies by Benlemlih (2019), Matos et al. (2020), and Salah and Amar (2022) were adopted. Accordingly, companies with an ESG score greater than zero were selected. Additionally, companies lacking available information on ESG variables for the analyzed period were excluded. Table 1 provides a summary of the research population and sample.

Table 1. Research population and sample

Population	Companies without ESG information for all years.	Final Sample
580	444	136

Source – research data (2023).

As shown in Table 1, the sample used in the research consists of 136 companies that had ESG information available for all the years analyzed. This sample was derived from an initial population of 580 companies, of which 444 were excluded for not presenting ESG data in at least one of the years considered.

3.2 Research Constructs

To address the research problem, three dependent variables were used to measure dividend policies. The overall cash distribution was analyzed rather than focusing solely on dividends or interest on equity. As proxies for dividend policy, the dependent variables used were total dividends, payout, and dividend yield.

The total dividends variable was measured by the total amount of dividends paid during the period. This dependent variable represents the amount paid to shareholders. The payout variable was measured as the percentage of dividends paid relative to the companies' adjusted net income. Finally, the dividend yield variable was measured as the percentage of dividends paid relative to the stock price.

In Chart 1 below, all independent variables and their respective operational procedures for obtaining them are specified.

Chart 1. Description and operationalization of variables

Variable	Description	Operationalization	Expected effect	References
CSR/ESG	Thomson Reuters general metric: community, employees, environment, and governance	Refinitiv® database	Positive	Benlemlih (2019); Matos et al. (2020); Salah e Amar (2022)
TAM	Company size	Natural logarithm of the company's total assets	Positive	Samet e Jarboui (2017); Cheung et al. (2018); Benlemlih (2019); Matos et al. (2020); Trihermanto e Nainggolan (2020); Salah e Amar (2022)
ALAV	Leverage (indebtedness)	Total Liabilities divided by Total Assets	Negative	Cheung et al. (2018); Benlemlih (2019); Matos et al. (2020); Trihermanto e Nainggolan (2020); Salah e Amar (2022)
ROA	Return on asset	Operating Income (before Financial Expenses) divided by the Company's Total Assets	Positive	Santana (2006)
MB	Market to book	Adjusted Market Value divided by the Company's Book Value	Positive	Santana (2006); Samet e Jarboui (2017);Cheung et al. (2018); Matos et al. (2020)
Profit index	Profitability	Net Income/Revenue	Positive	Rakotomavo (2012); Matos et al. (2020); Salah & Amar (2022)
LPA	Earnings per share	Earnings per share of company i at the end of period t	Positive	Rakotomavo (2012); Matos et al. (2020); Salah & Amar (2022)
ROE	Return on equity	ROE of company i at the end of period t. Measures the company's profitability through Return on Equity (ROE). Net Income/Equity	Positive	La Porta et al. (2000)

Source: Authors' own elaboration, 2023.

3.3 Data collection and analysis procedures

Information regarding ESG performance (overall, environmental, social, and governance) and dividend policies was collected from the Refinitiv® database. The control variables were obtained from the Economática® database.

The assessment of CSR/ESG data consists of four main dimensions: community, employees, environment, and governance. Each dimension is composed of three sub-dimensions, as presented in Chart 2.

Chart 2. Dimensions and Sub-dimensions of Thomson Reuters®

Community	Employees	Environment	Governance
Community development and philanthropy	Compensation and benefits	Energy and climate change	Board
Product	Diversity and labor rights	Environmental policy and reports	Ethics and leadership
Human rights and supply chain	Training, safety, and health	Resource management	Transparency and reports

Source: Adapted from Thompson Reuters®

The ESG score seeks information representing strengths related to CSR and weaknesses, i.e., factors that hinder this type of activity. After summing and aggregating the indicators for each dimension, the individual scores were totaled to represent the overall CSR score for a given year through each company's ESG score. For each strength (Força) and weakness (Fraqueza) identified, a value of 1 was assigned, and if absent, a value of 0 was assigned, thus functioning as a dummy variable. The aggregation method followed the approach proposed by Manescu (2011), as shown in Equation 01:

$$ESG_t^i = \frac{\sum_{p=1}^{n_t^i} Força_p^i}{n_t^i} - \frac{\sum_{q=1}^{m_t^i} Fraqueza_q^i}{m_t^i} \quad (1)$$

Where ESG_t^i is the ESG score for dimension i at time t; $Força_p^i$ is the strength indicator for dimension i at time t; $Fraqueza_q^i$ is the weakness indicator for dimension i at time t. Both indicators are dummy variables that take the value of 1 if the company exhibits strength p or weakness q, and zero otherwise.

n_t^i and m_t^i represent the total number of strength and weakness indicators at time t (Cheung et al., 2018).

The total ESG score represents an aggregated value of Corporate Social Responsibility (CSR) performance across three subgroups: Environmental, Social, and Governance. This score encompasses various aspects, such as emissions, environmentally focused product innovation, human rights, job quality, training and development, community impact, and shareholder relations, among others. The score ranges from 0 to 100, with 100 being the highest possible score. This allows for a quick and easy identification of ESG strengths (50–100 points) or weaknesses (0–49 points).

The strength and weakness indicators are first summed, and then the average for each year is calculated before computing the overall average ESG score. This approach ensures that comparisons across years can be made meaningfully.

To account for the influence of other variables on dividend payments and to isolate the effect of CSR, measured by the ESG score (Benlemlih, 2019), the following control variables were included in the model: company size, leverage, ROA, market-to-book ratio, adherence to differentiated levels of corporate governance, profit index (ILL), payout, earnings per share (EPS), and ROE (Benlemlih, 2019; Cheung et al., 2018; Forti et al., 2015).

In this regard, the model for estimating the impact of the level of CSR, represented by the ESG score, on dividend policy is given by Equation 2:

$$Dividendo = \beta_0 + \beta_1 ESG + \beta_2 ROE + \beta_3 ROA + \beta_4 EV + \beta_5 MB + \beta_6 ILL + \beta_7 LPA + \varepsilon_2 \quad (2)$$

Where: Dividendo is the dependent variable measured by total dividends, payout, or dividend yield. ESG is the aggregated value of Corporate Social Responsibility (CSR) performance. The remaining variables are presented in Chart 01.

After data collection, the information was tabulated in Microsoft Excel and imported into the R Studio statistical software for data processing. Initially, winsorization of the continuous variables was performed, followed by an analysis of the correlation between the variables, and finally, an Ordinary Least Squares (OLS) regression with robust standard errors.

4 Results

4.1 Exploratory data analysis

Initially, exploratory analyses of the variables available in the database were conducted. Presenting the initial statistics enables the identification of the variables' behavior, providing insights for planning the subsequent stages of the analysis. This approach allows for the selection of the most appropriate method to meet the study's primary objectives.

Table 02 shows the year-by-year percentage of companies that paid dividends and those that did not pay dividends.

Table 2. Year-by-year percentage of companies that paid dividends and companies that did not pay dividends

STATUS	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Paid dividends	80,1%	81,6%	82,4%	79,4%	77,2%	72,8%	71,3%	69,9%	72,8%	70,6%	70,6%
Did not pay dividends	19,9%	18,4%	17,6%	20,6%	22,8%	27,2%	28,7%	30,1%	27,2%	29,4%	29,4%

4.2 Analysis of time series of average indicators for each quantitative variable in the study

IConsidering that the numerical variables were measured from 2012 to 2022, it was decided to present the averages of each variable over time. The data are shown in Table 03. It is important to note that all variables have missing values for some observations, and the reported averages were calculated for the reference period, excluding the missing values.

Table 3. Indicators of the averages of the analyzed variables by year

Variable	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Payout	0,434	1,404	0,542	0,56	0,5	0,51	0,617	0,516	0,397	0,374	0,448
Dividtotal	783,08	897,96	920,89	748,159	715,79	768,19	1119,94	1328,34	1026,25	2681,62	3323,59
Dividyield	0,037	0,038	0,055	0,054	0,034	0,027	0,04	0,027	0,027	0,053	0,058
ESG	50,45	52,315	50,853	51,219	50,152	50,476	52,022	50,536	49,113	49,771	50,877
ROE	0,104	0,094	-0,102	-0,929	0,095	0,103	0,036	0,176	0,072	0,215	0,094
DEBT	2,92	6,873	3,832	4,339	3,564	3,314	11,464	2,736	2,961	3,457	3,31
ROA	0,051	0,046	0,04	0,025	0,036	0,047	0,044	0,058	0,037	0,059	0,037
EV	25624,82	26820,97	28038,84	29078,16	33226,13	37200,19	39721,96	49670,96	53641,1	50657,46	53413,79
MB	14459,94	15131,23	14148,82	12196,89	16400,93	21087,53	23608,4	32222,99	34572,59	29315,25	27601,71
ILL	-0,307	-4,398	0,122	0,055	-0,078	0,109	0,054	0,092	0,071	0,114	0,063
LPA	-1,509	-0,85	-1,702	-72,228	-531,923	-276,7	3,75	1,547	0,486	1,91	1,794

A possible measure of interest for comparing the beginning of the analysis period with the end of the analysis period is the relative variance (in %), which indicates the increase (or decrease) detected between the indicator for the final period and the indicator for the initial period. Considering the arithmetic mean, for example, the expression for the relative variation between two periods is given by Equation 03 (VARIAÇÃO RELATIVA: relative variation; MÉDIAFINAL: final mean; MÉDIAINICIAL: initial mean):

$$VARIAÇÃO\ RELATIVA = \frac{(MÉDIAFINAL - MÉDIAINICIAL)}{MÉDIAINICIAL} \times 100 \quad (03)$$

Thus, considering the tables and charts presented for the variables PAYOUT, DIVIDTOTAL, DIVYIELD, ESG, ROE, DEBT, ROA, EV, MB, ILL, and LPA, it was possible to identify the main evidence when comparing the initial and final periods:

•The historical series of the PAYOUT variable shows an upward trend in 2022 compared to 2012, with a relative variation of 3.22%;

•The DIVYIELD variable follows the same upward trend in 2022 compared to 2012, with a relative variation of 56.76%;

•The ESG variable shows an increase in 2022 compared to 2012, with a relative variation of 0.83%;

•The ROE and ROA variables, on the other hand, exhibit a downward trend in 2022 compared to 2012;

•The DEBT variable shows an upward trend in 2022 compared to 2012, with a relative variation of 13.35%;

•The EV and MB variables show a significant increase in 2022 compared to 2012, with relative variations of 108.44% and 90.88%, respectively;

•Finally, the LPA variable shows an increase in 2022 compared to 2012, with a relative variation of 18.89%.

In this study, the three variables of interest were: payout, total dividends, and dividend yield. Table 04 presents the linear correlation values between these three variables and the other variables in the database.

The decision rule for analyzing the correlation coefficients was as follows: all variables that showed a significant correlation with the outcomes, as per the correlation test, were considered for the statistical model adjustment. In addition to calculating the simple coefficient, it was tested whether the presented value implies evidence of a causal relationship between the explanatory variables and the analyzed dependent variables. Correlations with a p-value less than 0.05 were considered significant, given the 95% confidence level used in the analyses.

It is important to clarify that the three variables considered as outcomes had missing data. Therefore, correlations were calculated by excluding pairs of observations where at least one value was missing. With a database of 1,496 observations, the losses for correlation calculations were not substantial, allowing for the derivation of plausible conclusions.

Table 4. Correlations between the explanatory variables and the three outcomes of interest

Variables	Payout	Dividtotal	Divyield
ESG	0.043	0,179*	0,085*
ROE	- 0.037	0,078*	0,081*
DEBT	- 0.011	- 0,010	-0,032
ROA	- 0.039	0,128*	0,171*
EV	0.046	0,443*	0,120*
MB	0.088*	0,533*	0,107*
ILL	- 0.016	0,059*	0,059*
LPA	0.007	0,063*	- 0,012

Thus, considering the three outcome variables of interest, the results provide evidence that it was possible to fit three statistical models for the data in this study. The models had the following structure:

•Model 1: PAYOUT variable versus MB variable

•Model 2: DIVIDTOTAL variable versus all variables, except the DEBT variable

•Model 3: DIVYIELD variable versus all variables, except the DEBT and LPA variables

In summary, the correlation results between the variables indicate that the ESG variable affects the dividend policies of the analyzed Brazilian companies, both in terms of total dividend payments (DIVIDTOTAL) and as a measure of investment return (DIVYIELD).

Furthermore, the correlation results indicate that the ESG variable, as an indicator, plays a significant role for companies and may provide evidence that higher CSR/ESG scores tend to be associated with a higher dividend payout ratio. According to Cheung et al. (2018), this relationship enables shareholders to achieve their objectives (Salah & Amar, 2022) and benefits all stakeholders (Freeman, 1984). However, these analysis results are preliminary and need to be confirmed through multiple linear regression, conducted subsequently.

4.3 Multiple linear regression analysis

Regression analysis is a statistical technique that seeks to establish the relationship between two or more variables. Thus, adapting to the structure of this study and considering the correlation values presented in Table 04, the following models will be analyzed:

Model 1: $PAYOUT = \beta_0 + \beta_1 MB + \varepsilon_1$

Model 2: $DIVIDTOTAL = \beta_0 + \beta_1 ESG + \beta_2 ROE + \beta_3 ROA + \beta_4 EV + \beta_5 MB + \beta_6 ILL + \beta_7 LPA + \varepsilon_2$

Model 3: $DIVYIELD = \beta_0 + \beta_1 ESG + \beta_2 ROE + \beta_3 ROA + \beta_4 EV + \beta_5 MB + \beta_6 ILL + \varepsilon_3$

The parameters of each model were estimated using the Ordinary Least Squares (OLS) method. Initially, before fitting each model, the response variable in the database was treated to remove outliers prior to each adjustment. The criterion was based on a simple exploratory analysis, considering outliers as those values of the response variable that fall below the quantity l_inf = Q_1 - 1.5IQR or above the quantity l_sup = Q_3 + 1.5IQR, where Q_1 is the first quartile, Q_3 is the third quartile, and IQR = Q_3 - Q_1 is the interquartile range. Thus, each model was fitted after analyzing outliers based on this criterion.

In all models, the need to address extreme data (outliers) was initially assessed. Given the considerable number of observations in the sample, it was decided to remove these observations and fit the model under these conditions. Additionally, using the database from which these observations were removed, it was decided to consider only the database without missing information (missings). Furthermore, it was found that the model without the intercept provided better model quality.

Regarding Model 1, the data show evidence that for every increase of 100,000 units in the MB variable, there is a 0.3292% increase in the PAYOUT variable. For this model, the coefficient of determination was 0.1999 (19.99%). The ANOVA test (F-test) to assess whether the model is appropriate yielded a p-value less than 0.0001. This provides evidence that, statistically, at least one of the model's parameters, which are the effects of the explanatory variables, is different from zero. Since only the MB variable is included in this model, this indicates that there is evidence at a 95% confidence level that the coefficient is statistically different from zero. The Breusch-Pagan test was used to detect evidence of heteroskedasticity, and the p-value for this test was 0.6421, indicating the absence of heteroskedasticity. The results are presented in Table 05.

Table 5. Results of Regression Model 1

Variable	Parameter estimate	p-value
MB	0,0000032932	< 0,01

Regarding Model 2, as shown in Table 06, for every one-unit increase in the ESG variable on its measurement scale, there is evidence of a 1.465 increase in DIVIDTOTAL. The other variables were also significant.

Table 6. Results of Regression Model 2

Variable	Parameter estimate	p-value
ESG	1,465	< 0,01
ROA	2.294,33	< 0,01
EV	0,00834	< 0,01
ILL	149,01	0,044

Regarding Model 3, it was found that for every one-unit increase in the ESG variable on its measurement scale, there is evidence of a 0.4 increase in DIVYIELD. For this model, the coefficient of determination was 0.6786 (67.86%). The results are presented in Table 07.

Table 7. Results of Regression Model 3

Variable	Parameter estimate	p-value
ESG	0,00047	< 0,01
ROA	0,12682	< 0,01
MB	- 0.00000016	0,044
ILL	0,01094	0,009

With the collected data, it was also possible, based on the groups defined by ESG, to estimate the likelihood of dividend payments using the simple frequencies of the database records. Table 08 presents the cross-tabulation between payout and ESG by group.

Table 8. Cross-tabulation between payout and ESG by group

Categories	ESG			TOTAL
	Not reported	ESG < 50	ESG >=50	
DID NOT PAY	209	109	82	400
PAID	327	328	441	1096
TOTAL	536	437	523	1496

Without considering the ESG variable, the estimated likelihood of dividend payment is 1096/1496 = 73.2%. For the group with ESG < 50, the estimated likelihood of dividend payment is 328/437 = 75.05%. For the group with ESG >= 50, the estimated likelihood of dividend payment is 441/523 = 84.32%. For the group with ESG not reported, the estimated likelihood of dividend payment is 327/536 = 61.0%.

Regarding the total, the data are presented in Table 09. For the group with ESG < 50, the estimated likelihood of dividend payment is 358/437 = 81.9%. For the group with ESG >= 50, the estimated likelihood of dividend payment is 441/523 = 89.29%. For the group with ESG not reported, the estimated likelihood of dividend payment is 302/536 = 56.3%. Thus, it can

be observed that companies with ESG scores above 50 have a higher probability of paying larger dividends when ESG and DIVIDTOTAL data are cross-referenced.

Table 9. Cross-tabulation between payment (dividtotal) and ESG by group

Categories	ESG			TOTAL
	Not reported	ESG < 50	ESG >=50	
DID NOT PAY	234	79	56	369
PAID	302	358	467	1127
TOTAL	536	437	523	1496

Finally, considering the cross-tabulation between dividend yield and ESG by group, it can be verified that companies with an ESG score greater than 50 points have a higher probability of paying larger dividends. Without considering the ESG variable, the estimated likelihood of dividend payment is 1127/1496 = 77.8%. For the group with ESG < 50, the estimated likelihood of dividend payment is 404/437 = 92.4%. For the group with ESG >= 50, the estimated likelihood of dividend payment is 497/523 = 95.02%. For the group with ESG not reported, the estimated likelihood of dividend payment is 263/536 = 49.1%.

Table 10. Cross-tabulation between payment (DIVYIELD) and ESG by group

Categories	ESG			TOTAL
	Not reported	ESG < 50	ESG >=50	
DID NOT PAY	273	33	26	332
PAID	263	404	497	1164
TOTAL	536	437	523	1496

Based on the presented results, it can be evidenced that there was a larger number of companies that paid dividends in the group with scores above 50 points. In turn, this group showed a dividend payment probability of 89.29% for the DIVIDTOTAL variable and 95.2% for the DIVYIELD variable regarding the propensity or likelihood of dividend payments.

Therefore, companies with higher ESG scores tend to have more stable profit participation in the stock market, as they better meet the interests of stakeholders (Benlemlih, 2019; Matos et al., 2020). In this regard, CSR initiatives contribute to strengthening relationships with stakeholders and maintaining a consistent level of dividend payments (Shen et al., 2021).

Two model variables related to dividend payments (DIVIDTOTAL and DIVYIELD) showed statistical significance for ESG and are positively related in the analyzed model. These findings corroborate the results of Benlemlih (2019) and Salah and Amar (2022). Among the control variables, it was found that company size has a positive relationship with dividends per share, contributing to the stability of their distribution (Trihermanto & Nainggolan, 2020).

In contrast, elevated levels of financial leverage are negatively associated with dividend payment stability, indicating that indebtedness reduces the ability to maintain consistent shareholder remuneration flows. This result aligns with the conclusions of Matos et al. (2020), who highlight how capital structure decisions affect the variability of net income after meeting financial obligations. The findings for the leverage variable corroborate the discoveries made by Trihermanto and Nainggolan (2020).

The findings of this research also align with those of Matos et al. (2020), indicating that social performance has a positive influence on the level of dividend returns.

The results found for the effects of ESG performance on dividend payments reveal that ESG activities carried out by companies tend to increase earnings through a better relationship with stakeholders (Cheung et al., 2018), which aligns with Stakeholder Theory (Freeman, 1986).

Therefore, higher profits represent greater chances for companies to make dividend payments (Cheung et al., 2018). Additionally, ESG practices and scores serve as a way for companies to signal their concern for stakeholders (Benlemlih, 2019; Salah & Amar, 2022).

5 Final considerations

The results suggest that companies can adopt an ESG strategy to generate a strongly positive impact, promoting a more stable dividend policy as a way to communicate their transparency and ability to efficiently manage resources to stakeholders (Benlemlih, 2019).

The findings indicate that Brazilian companies with more responsible behaviors, reflected in higher ESG scores, tend to adopt more robust dividend distribution policies, which contributes to more efficient resource management and strengthens relationships with stakeholders, as evidenced by higher values and greater stability in dividend payments.

Thus, the results of this research have significant implications for the Brazilian market context, as companies that adopt practices related to environmental, social, and governance (ESG) issues tend to distribute higher dividends. This suggests that investment in Corporate Social Responsibility (CSR) does not necessarily reduce the cash flows paid to investors (Rakotomavo, 2012).

Based on the results of this research, it is concluded that the higher the ESG score of Brazilian companies, the greater their propensity to pay dividends. Thus, the finding that companies' engagement with ESG issues results in higher dividend payments encourages greater commitment to these strategies, while also promoting more attractive dividend remuneration for shareholders. This discovery may motivate investors to allocate resources to socially responsible companies.

It is recommended that future research address topics related to the themes analyzed in this study. The use of additional variables, such as profit margin, company life cycle stage, and sales revenue, is suggested to deepen the understanding of dividend payment levels. Additionally, it is recommended to break down the ESG variable into its sub-dimensions and investigate their impact on variables reflecting the size and volume of dividend payments.

An additional recommendation is to conduct comparative analyses between countries, or groups of emerging countries, to compare the effects of ESG scores on dividend policies in these nations. This approach would allow for the exploration of significant and specific differences in relation to countries with more developed and consolidated financial markets. Furthermore, it is suggested to use other statistical tests and techniques to investigate whether companies with low, medium, and high ESG scores exhibit distinct behaviors regarding the dividend policies adopted by the analyzed companies.

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