

Corporate Social Responsibility and Media Visibility —Brazilian Companies' Donations during the COVID-19 Pandemic

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Abstract

Recent behavioral finance studies have focused on understanding how online investors react to corporate giving announcements. This research analyzed Google Trends search indexes during the first two years of the COVID-19 pandemic for companies that made donations and also examined the variation in their financial returns. The study aimed to determine whether donor companies experienced greater growth in media visibility during the pandemic compared to non-donor companies. Using a sample of 289 organizations listed on the Brazilian Stock Exchange and employing the “differences in differences” method, the study found no statistical significance when the pandemic effect was applied, leaving the hypothesis on visibility inconclusive. However, favorable results were observed without the pandemic effect, consistent with studies demonstrating a link between social actions and positive consumer responses. As a result, Google Trends proved to be a valid predictor of Brazilian financial data, with the behavior of marketing variables in relation to search trends reinforcing ongoing research on the tool's potential to gauge public sentiment and market fluctuations.

Keywords: media visibility, Google trends, donations, COVID-19

1. Introduction

The COVID-19 pandemic has impacted millions of people worldwide, both in terms of health and economics. In response to this challenging situation, many companies, organizations, and individuals mobilized to support those most affected, launching fundraising campaigns that raised significant amounts of money, food, medical supplies, and personal protective equipment.

These donations have played a crucial role in alleviating the effects of the pandemic while demonstrating the social responsibility of companies and organizations during a crisis. The pandemic exposed deep societal inequalities and the importance of ensuring equitable access to resources necessary for health and well-being. Companies that stepped up to help showed their commitment to society and contributed to a culture of solidarity and social responsibility.

There has been a growing consensus that this unprecedented health and economic crisis may have positively influenced philanthropic behavior (Demers, Hendrikse, Joos, & Lev, 2021; He & Harris, 2020; Qiu, Jiang, Liu, Chen, & Yuan, 2021). According to the Brazilian Association of Fundraisers' COVID-19 Donations Monitor, over 548,000 donations were made in 2020, totaling approximately BRL 7 billion (ABCR, 2021).

Recent studies on corporate social responsibility (CSR) have begun to recognize that merely disclosing social efforts is insufficient for generating long-term returns. Beaufort, Eberwein, and Seethaler (2017) argue that technology has become a mediator of CSR dissemination and public response, requiring closer attention to global shifts in societal structures. Participation in society is undergoing profound changes across various social systems and contexts beyond the Western world, each following different patterns (Ding, Guan, Chan, & Liu, 2020).

The COVID-19 pandemic stands out from other crises in terms of its impact on the use of technology and the increase in public engagement. The pandemic is thought to have accelerated ongoing transformations, encouraging debates about the need for new communication strategies with stakeholders and innovative ways to

measure returns (Polaz, 2021). With the increase in internet users during periods of social distancing, companies that built strong relationships with online consumers were better positioned to withstand the adverse effects of the crisis and turn it into an opportunity by offering digital solutions to expand their businesses (Lim & Pan, 2021). Companies or industries with pre-existing digital ecosystems were considered digitally resilient, enabling them to manage emergencies effectively and instill investor confidence, making their stock prices less vulnerable to market downturns (Ding et al., 2020).

Proprietary websites, forums, social media platforms, online newspapers, and public opinion sites, for example, have become critical tools for communicating CSR initiatives to stakeholders, including employees, journalists, shareholders, and investors (Wang, Geng, & Rodríguez-Casallas, 2021). These tools are particularly effective due to their ability to reach targeted audiences and combine various forms of media, such as text, photos, audio, and video, that make them powerful replicators in the communication process while fostering dialogue with users through interactive features (Ding et al., 2020).

Google Trends has been used in both the stock market and academic research to study public reactions to marketing strategies and to assess the extent to which it can predict market dynamics. By analyzing Google searches from the general public, the tool provides popularity indicators by tracking the number of searches on specific topics. Additionally, trends can be filtered by factors such as time, location, and type of search.

By monitoring the peak of the company's popularity (or how much the public searched for the organization), it is possible to assess public attention following CSR announcements. Google Trend search data can capture the public's attention to unexpected events and be a timely marker of investment dynamics, serving as a strategic resource for predicting stock market movements almost in real-time.

Despite growing interest in understanding how this data can predict market dynamics, it remains unclear whether these methods are more effective than traditional measures of stakeholder returns (Camilleri, 2018). For Beaufort et al. (2017), although evidence suggests that being socially responsible on social media contributes to the companies' public awareness, there is an imbalance and a gap regarding why some corporate actors do not fully engage with stakeholders.

He and Harris (2020) argue that it is essential to study stakeholder engagement during and after the pandemic. For the authors, COVID-19 heightened public expectations regarding corporate social responsibility (CSR) and led to the classification of companies based on their responses to the crisis. The intense pressure to survive, combined with limited resources, tested the authenticity of CSR strategies, making it relevant to investigate whether socially responsible Brazilian companies were able to strengthen their relationships with customers and the broader public. Companies that remained committed to CSR during the pandemic are expected to perform better in the post-pandemic period (Qiu et al., 2021).

A gap exists in research on the relationship between CSR and companies' online media visibility, particularly in light of the changes brought about by the COVID-19 pandemic. This study suggests that companies that made donations during the pandemic gained greater media visibility, which in turn translated into more resilient financial performance compared to companies that did not donate. Based on this premise, the study addresses the following research question: What is the effect of corporate giving on the media visibility of publicly traded Brazilian companies during the first two years of the COVID-19 pandemic? The general objective is to investigate this relationship.

The research used Google Trends as a media vector to empirically measure media visibility through search trends. Given the relatively unexplored nature of this field - specifically, the financial returns from corporate donations in Brazil - this study contributes to understanding the structure of the social contract and examines how social visibility impacts stock returns during the pandemic.

The work is divided into five sections, beginning with this introduction, which outlines key concepts, the research context, the problem, and the justifications and contributions. The second section presents the theoretical framework, followed by the third section, which details the research classification, design, and methodological procedures. The fourth section presents the main results and data analysis, providing robust information and assumptions to address the research hypotheses and questions. Finally, the fifth section offers concluding remarks, summarizing key findings and proposing areas for further research.

2 Theoretical Framework

2.1 Stakeholder Theory

Stakeholders are defined as any group or individual who can affect or be affected by a company's objectives (Freeman, 2007). Companies must consider all their stakeholders, as various groups contribute to their success.

These groups extend beyond shareholders and may include managers, employees, customers, suppliers, local communities, and government agencies (Baker & English, 2013).

However, recognizing a broad range of stakeholders presents challenges, particularly balancing multiple and sometimes conflicting objectives. Managers often face a dilemma regarding whose interests to prioritize - shareholders or other stakeholder groups (Baker & English, 2013). Any information an organization shares with its stakeholders is part of its efforts to maintain social legitimacy. Even in markets with stringent transparency requirements, full-time managers inevitably have more information than investors (Baker & English, 2013).

The literature suggests that corporate giving increases a company's political visibility and public scrutiny and pressure. Qian et al. (2015) show that socially responsible companies tend to be more transparent in their corporate transactions and financial reporting, reducing agency problems. Consequently, corporate philanthropy can mitigate information asymmetry and strengthen external monitoring, which reduces the likelihood of corporate misconduct (Camilleri, 2018).

Social disclosure plays a key role in ensuring that philanthropic actions reach stakeholders, being a communication bridge between companies and society (Sama, Stefanidis, & Casselman, 2022). As defined by Camilleri (2018) and Garcia, Sousa-Filho, and Boaventura (2018), disclosure is a democratizing tool for corporate social communication. Stakeholders are critical in determining what is disclosed, as they have the right to accountability for corporate actions.

The disclosure of quality reports is rooted in the principle of accountability, which is based on the principle of inclusion - ensuring accountability to all interested groups. This process allows companies to manage and shape stakeholders' perceptions and build trust, ultimately obtaining the benefits of positive relationships.

While annual reports have traditionally served as the primary channel for organizations to communicate with stakeholders, there is substantial evidence of shifts in disclosure practices. These changes are driven by evolving regulations, emerging community concerns and expectations, and increased public attention to organizational performance and operations (Sama et al., 2022). In response to the constant evolution of the information that must be disclosed, organizations are increasingly adapting their communication methods to meet the needs of diverse stakeholder groups. They are using various media formats to present social and environmental information in an easily understandable manner (Weng, Ahmed, & Megahed, 2017).

Beaufort et al. (2017), Weng et al. (2017), and Ding et al. (2020) have noted the growing trend toward digital disclosure. Corporate websites and social media have become central tools in this shift, offering not only the ability to target specific audiences but also the advantage of combining various media formats - such as text, images, audio, and video - to engage stakeholders. Additionally, these platforms facilitate interactive communication, promoting dialogue on ethics and corporate responsibility. The number of participants in this communication process has expanded considerably, making corporate social responsibility (CSR) communication more multidirectional and enhancing discussions on business ethics and accountability (Gonçalves, 2021).

The growing use of the internet has provided management with a powerful channel for disseminating information, enabling reports to be customized to address the stakeholders' diverse technical and informational needs. The internet empowers stakeholders to hold corporate agents directly accountable, allowing them to express concerns and actively demand greater transparency and accountability from corporations. Consequently, the digitization of CSR communication has profound implications for the relationship between corporations and their stakeholders (Ding et al., 2020).

Various CSR stakeholder engagement methods are currently being explored, with researchers seeking effective ways to measure how stakeholders respond to these online initiatives (Gonçalves, 2021). Notably, trend research using tools like Google Trends and Baidu Index has emerged as an approach to quantify the impact of CSR actions on stock prices (Coombs & Holladay, 2015).

Stakeholder engagement - evidenced by Friedman and Miles (2006) through the relationship between companies and their stakeholders - has become more apparent, scrutinized, and forcefully demanded in the context of catastrophes, crises, and pandemics. Companies are increasingly expected to align their business strategies to be more transparent and committed to workers, the environment, and society.

By capturing investors' collective interests, these tools reflect market sentiment and can predict decision-making processes and broader investment behaviors (Beaufort et al., 2017). Studies have validated the use of search indexes, such as Google Trends, as proxies for market sentiment, illustrating how critical events or news can influence stock prices (Ding et al., 2020; Liu et al., 2020a). Given the rapid changes in market dynamics,

understanding evolving market sentiment is challenging; however, internet search trends provide near real-time insights into public interest and intent (Ding et al., 2020; Liu et al., 2020).

Despite these advancements, it remains uncertain whether these means are more effective than traditional forms of stakeholder management and what are the specific motivations that drive audiences to actively participate in CSR communication online as opposed to conventional contexts (Weng et al., 2017; Ding et al., 2020; Liu, Peng, Hu, Dong, & Zhang, 2020). Nevertheless, the potential of digital CSR communication continues to attract interest from both practitioners and academics, particularly as its role as a mechanism for stakeholder engagement remains under-explored (Beaufort et al., 2017).

Although the COVID-19 pandemic has paralyzed many sectors of the economy, reports suggest an exponential growth in digitally enabled economic activities and business transactions during this period (Huang, Chen, & Nguyen, 2020). According to Ding et al. (2020), companies have undergone a digital transformation during the pandemic, often referred to as “digitalization.” Kane (2019) describes this process as the changes organizations experience when using digital technologies to create new, digitally enabled, and value-generating business models.

In alignment with He and Harris (2020), companies that have successfully undergone digital transformation are likely to have performed better during the pandemic, as they maintained a degree of operational continuity and revenue generation. As a result, market sentiment toward these companies may be more favorable, potentially translating into more resilient stock prices.

2.2 Media Visibility (Search Trends)

In the contemporary world, media spaces are essential arenas for social actors seeking visibility and influence. Mafra (2006) defines visibility as the state of being visible, apparent, manifest, and perceptible within a specific social context at a given time. For the author, making a topic visible is equivalent to granting it existence. Sgorla (2010) further notes that social actors engage in visibility processes to gain recognition and establish communication with other members of society. In this context, media visibility refers to the process through which an actor gains presence in the social sphere, striving for credibility by building a public image. This study will examine media visibility through the lens of Google Trends data.

The internet and search engines have prompted researchers to explore how search levels and content can elucidate or predict public behavior and financial actions during specific periods (Choi & Varian, 2012; Liu et al., 2020). For instance, Choi and Varian (2012) demonstrated that Google search data are an early indicator of disease infection rates and consumer spending. Similarly, the rapid exchange of information through social media platforms like Twitter provides valuable indicators for predicting stock prices.

Bogan (2008) found that frequent internet use enhances the likelihood of shareholder participation, offers users a broad range of financial investment opportunities, and facilitates access to market capital. This groundwork was built upon by Da, Engelberg, and Gao (2011), who pioneered the use of Google Trends to measure market attention, thereby extracting valuable insights regarding retail investments. Subsequently, Bordino et al. (2012) established a positive correlation between trading volumes on the New York Stock Exchange (NYSE) and the volume of searches conducted.

From a contemporary perspective, the heightened demands of stakeholders require greater efforts to meet their needs. This concept, initially articulated in the 1970s by Carroll (1979), posited that corporate managers cited the severity of social needs and the public relations value of social actions as primary motivations for engaging with social issues. Given the significant media attention corporate responses to tragedies receive, companies may perceive their donations as avenues for substantial and immediate public relations benefits. This notion was corroborated by Crampton and Patten (2008), who found that, in the aftermath of major catastrophic events, companies often face increased social demands to act as responsible citizens.

Leveraging the internet as a predictor of stakeholder behavior during crises, Da et al. (2011) used research data as the agent of investor sentiment, successfully predicting abnormal stock returns and trading volumes. Gao (2011) further documented a positive relationship between research data and daily trading activity.

In the field of social responsibility, Van den Heijlant and Vliegenthart (2018) examined the interplay between CSR and news media, organizational public relations (PR), and public sentiment using Google Trends data. Their findings were mixed across the various vectors analyzed. The authors call for further research into the reciprocal influences of CSR announcements and public responses. More recently, Yilmazkuday (2020) highlighted that Google daily trends could be a viable alternative to conventional US data, capturing insights into unemployment, interest rates, inflation, and COVID-19. This approach has facilitated correlations in studies examining the

effects of COVID-19 and corresponding monetary policies on unemployment at both the national level and across US states.

An increasing number of companies recognize the significant business advantages of being accountable through online public disclosures of their social and environmental performance. By using various media to present this information in an accessible way, these companies enhance their visibility to stakeholders (Liu et al., 2020). Several researchers, including Crossley, Elmagrhi, and Ntim (2021), argue that the rise in internet use provides management with alternative channels for disseminating information, allowing reports to be tailored to meet diverse technical and informational needs.

Companies that effectively leverage online disclosure are using the internet as part of their engagement strategies, facilitating dynamic interactions as expectations regarding corporate roles in relation to both external and internal stakeholders evolve (Liu et al., 2020). However, there are notable disadvantages to this approach: not everyone has access to the internet, much of the performance data is unaudited or unverified, and current online disclosures lack regulation. In light of these issues, Silva (2021) advocates for a hybrid model that combines traditional and contemporary disclosure practices.

Authors such as Rossoni (2016) and Lewis, Cardy, and Huang (2019) suggest that contract theory, institutional theory, and stakeholder theory are shaping a new corporate governance model in the 21st century. This model emphasizes transparency, equitable treatment of shareholders, socio-environmental development, and adherence to laws and ethical standards.

Accounting plays a critical role in ensuring the transparency of social responsibility initiatives, primarily by fostering their implementation and subsequent accountability. Nevertheless, most existing literature on accounting focuses on social reports, with limited exploration of corporate donations and their immediate returns, particularly during crises (Crampton & Patten, 2008).

In summary, the ongoing evolution of corporate governance reflects an effort to understand and adapt to online dynamics, informed by both recent and historical events. However, research examining how CSR disclosures influence corporate visibility - measured by online stakeholder search interest - remains limited. This study combines corporate giving announcements with a proxy for investor sentiment (Google Trends) using data from before and after the pandemic to assess stakeholder perceptions of socially responsible companies during a period of widespread distress.

This study hypothesizes that Google search data can be a direct measure of stakeholder attention to donation announcements:

H1: All else being equal, during the first two years of the COVID-19 pandemic, donor companies achieved greater media visibility through online search trends than non-donor companies.

In the field of research on the effects of abnormal events, such as catastrophes, crises, and pandemics, Table 1 presents the key studies conducted over the past two decades that relate to the topic of this study. This literature review uncovered a lack of studies examining the intersection of corporate social responsibility, media visibility, and the COVID-19 pandemic.

Table 1. Previous studies

Event	Findings	Authors
9/11 attacks	The changes in the extent of corporate philanthropy after 9/11 are positively and significantly associated with differences in firm profitability.	(Crampton; Patten, 2008)
	The research revealed that two-thirds of the ads were evaluated positively. Also, the ads more often expressed compassion for the victims and made patriotic appeals.	(Kinnick, 2003)
2008 global financial crises	The companies researched earned four to seven percentage points more than companies with low social capital. They also had higher profitability, growth, and sales per employee than companies with low CSR.	(Lins; Servaes; Tamayo, 2017)
2008 Wenchuan earthquake,	The authors found relationships between CEO characteristics (e.g., tenure, education, political connections, celebrity status) and different strategic aspects of giving, including donation size, timing, and disclosure.	(Wei; Ouyang; Chen, 2018)

China	Large companies and companies with political ties donate significantly more in these situations than smaller companies and companies without political ties.	(Gao, 2011)
	The research indicated a significant and positive cumulative abnormal seven-day increase in the stock prices of companies that made donations compared with those that did not.	(Song <i>et al.</i> , 2012)
	Politically connected companies are more likely to donate. However, the results indicated that while politically connected family firms are more likely to give, their activities do not generate as much of a positive effect on stock prices as their non-politically connected counterparts.	(Zhang <i>et al.</i> , 2012)
	A firm's total assets, degree of customer contact, stakeholder perceptions, media coverage, and even senior executives' tenure can all influence the level of aid that firms provide.	(Zhao <i>et al.</i> , 2015)
2008 melamine contamination of Chinese milk	The study suggests that social responsibility can influence investors' trading behaviors at least shortly after the event but not before it. Also, firms' CSR levels significantly mitigate negative investor responses in the food industry when facing shocks.	(Kong, 2012)
	Hospitality firms' engagement in CSR activities potentially increases stock returns and stakeholder attention during the COVID-19 pandemic.	(Qiu <i>et al.</i> , 2021)
	The authors found robust evidence that firms observed by female financial analysts are more likely to actively contribute to societal well-being by increasing corporate giving.	(Wang <i>et al.</i> , 2022)
COVID-19 pandemic	Companies with more pre-crisis CSR engagement have worse stock returns in the crisis period. The effect is greater for companies with more agency problems, less access to external financing, or worse pre-crisis financial conditions. Companies with more pre-crisis CSR engagement also have worse post-crisis operating performance.	(Yi; Zhang; Xiang, 2022)
	ESG was not a "capital vaccine" against the decline in stock prices during the crisis period.	(Demers <i>et al.</i> , 2021)
	CSR actions during the pandemic did not have a significant effect on stock returns, nor did they show any effect on the recovery of sectors.	(Bae <i>et al.</i> , 2021)

3. Methodological Procedures

The primary objective of this research was to investigate whether donor companies experienced greater growth in media visibility than non-donor companies during the first two years of the COVID-19 pandemic. The study focuses on publicly-held companies listed on the Brazilian Stock Exchange (B3).

The data collection period was limited to quarterly information from 2018 to 2021. Specifically, this includes data from two years before the pandemic (2018 and 2019) and two years during the pandemic (2020 and 2021). The population for this study consists of companies that disclosed their financial reports to the Securities and Exchange Commission (CVM) following the data available on the B3 website, totaling 492 companies over a four-year period.

Out of these, 161 companies were excluded from the analysis due to insufficient information, which hindered the collection of necessary financial and market indicators. Consequently, the final sample comprised 289 organizations.

The sample was categorized into treatment and control groups through a comprehensive analysis of the financial statements and explanatory notes available on the BMF&FBOVESPA website, specifically searching for mentions of donations.

Companies that reported making donations before and during the pandemic, totaling 128 firms, were designated as the treatment group. The remaining 161 companies formed the control group. Data was obtained from the Economática software, which provides values from the Brazilian Securities and Exchange Commission (CVM)

and Bovespa. The balanced panel included 4,624 observations, averaging 16 observations per company across the quarters from 2018 to 2021.

3.1 Description of the Econometric Model

The method employed in this research to achieve the proposed objectives is known as “differences in differences” (DD or diff-in-diff). This approach is commonly used in studies that leverage data from natural experiments or quasi-experiments (Carvalho, Rufino Gomes, & Oliveira, 2018).

According to Carvalho et al. (2018), the diff-in-diff method is based on a two-step subtraction process. The first step involves calculating the difference in the means of the outcome variable between the periods before and after the intervention for both the treatment group and the control group. The second step consists of determining the difference between the first differences calculated for these two groups. Essentially, this method compares the changes in outcomes before and after the intervention for the affected group with the corresponding changes for the unaffected control group. Table 2 links studies, variables, and operational definitions.

Table 2. Description of variables

Name	Operational definition	Observation	Reference
Trend_BM&F	The popularity index of daily searches using the company’s Ticker/Code, when the subject is BM&F (stock exchange and business)	Dependent variable	(Bozanta & Mardikyan, 2017; Liu et al., 2020)
Trend_Company	The popularity index of daily searches using the company’s Ticker/Code, linked to the company’s name	Dependent variable of robustness	(Bozanta & Mardikyan, 2017; Liu et al., 2020)
¹ Treatment	Dummy with number 1 indicating whether the company reported donations and, therefore, fits into the treatment group; 0 for companies that did not report donations and fit into the control group	Model’s estimator	(Ni & Zhang, 2019; Yi, Zhang, & Xiang, 2022)
¹ Pandemic	Dummy with number 0 indicating whether the period is pre-pandemic (2018-2019); and 1 for the period during the pandemic (2020 and 2021)	Model’s estimator	(Ni & Zhang, 2019; Yi et al., 2022)
¹ Treatment#Pandemic	The effect of the treatment group when the period is “during the pandemic”	Model’s estimator	(Ni & Zhang, 2019; Yi et al., 2022)
² Index_transp	Index indicating number 0 for the quarterly financial report with the absence of donation; 1 for reports with donation, without informing amounts; and 2 for donation informing amounts.	Control variable	Elaborated by the authors (2023)
² Type_donation	Dummies separated by type of donation, 1 indicates a cash donation, a donation of other items (e.g., food, equipment), or a combination of cash and other donations; 0 indicates no donation	Control variable	Elaborated by the authors (2023)
Z-Score	$^{(1)}Z\text{-SCORE} = 1,2 + \left(\frac{WORKING\ CAPITAL}{ASSETS}\right) + 1,4 \left(\frac{RETAINED\ EARNINGS}{ASSETS}\right) + 3,3 \left(\frac{EBIT}{ASSETS}\right)$	Control variable	(Huang et al., 2020)

$$+_{0,6} \left(\frac{MARKET\ VALUE}{LIABILITIES} \right)$$

$$+_{1} \left(\frac{REVENUE}{ASSETS} \right)$$

ROA	Operating profit / Total assets	Control variable	(Boubaker, Cellier, Manita, , & Saeed, 2020; Huang et al., 2020)
Size	Natural Log of total assets	Control variable	(Qiu et al., 2021)
Leverage	Total liabilities	Control variable	(Qiu et al., 2021)
Dividends	Dividends/shares	Control variable	(Ni & Zhang, 2019)
Market to Book	Market value / Book value	Control variable	(Boubaker et al., 2020)
Liquidity	Current assets / Current liabilities	Control variable	(Bose, Shams, Ali, & Mihret, 2022)
CCE	Cash / total assets	Control variable	(Ni & Zhang, 2019)

Notes. ¹ The difference-in-differences estimator requires: first, a dummy variable that distinguishes between the treated and control groups, and second, a dummy that divides the sample into at least two time periods - before and after the intervention. The main assumption of the model is that the outcome trajectories of the treated and control groups evolve in parallel before the treatment. Thus, any impact of the treatment is captured by the difference in the changes in outcomes between the two groups before and after the treatment. Denoting t=1 as the post-treatment period and t=0 as the pre-treatment period formalizes the difference-in-differences estimator.

² Variables elaborated by the authors.

The primary model of the diff-in-diff method, often applied through regression analysis, can be represented as follows:

$$Trend_BM\&F = B_0 + B_1 Treatment * Pandemic_{i,t} + \varphi Control_{i,t} + Company_i + Year_t + \varepsilon_{i,t}$$

$$Trend_Company = B_0 + B_1 Treatment * Pandemic_{i,t} + \varphi Control_{i,t} + Company_i + Year_t + \varepsilon_{i,t}$$

Company_{it} and Year_{it} serve as fixed effect controls, where *i* and *t* fix the company and the year. “Treatment*Pandemic” is a variable of interaction of the treatment group when the “pandemic effect” is applied and this is the primary explanatory variable of interest. “Control” represents the variables transparency index, type of donation, z-score, return on assets (ROA), company size, leverage, dividends, market-to-book ratio, liquidity, and cash conversion efficiency (CCE).

4. Analysis and Discussion of Results

4.1 Descriptive Analysis

We conducted a preliminary analysis to better understand the relationships between different types of organizations. Table 3 presents the descriptive statistics for the 289 companies in the sample, aiming to infer the primary measures of central tendency and dispersion concerning market values, stock returns, company visibility, and other financial variables.

Table 3. Descriptive analysis

Variable	Obs	Mean	Standard Deviation	Min	Max
Trend BM&F	4,624	21.46	25.736	0	100
Trend company	4,624	36.56	29.945	0	100
Ret	4,624	0	0	-0.011	0.012
Logsize	4,624	15.35	1.942	9.056	20.91
Roa	4,624	1.051	25.878	-1,459.89	380.84
Liquidity	4,624	2.244	3.967	0	113.47
Ebit	4,624	1,408,449.4	8,525,533.8	-54,121,317	219,500,000
Logstkhd	4,624	11.86	2.057	4.91	16.57
Divac	4,624	0.27	1.28	0	35.43
Leverage	4,624	1.95	16.72	-241.13	492.18
Market to book	4,624	2.25	9.39	-166.22	367.03
Z_score	4,624	2.69	12.71	-68.47	298.65
CCE	4,624	0.078	0.094	0	0.99
CASH DON	4,624	0.095	0.294	0	1
ITEMS DON	4,624	0.08	0.272	0	1
COMB DON	4,624	0.086	0.281	0	1

Table 3 summarizes the data analysis by displaying the minimum and maximum values for each variable, along with the average and standard deviation. Although the data are presented in their raw form, notable insights emerge regarding the research variables, highlighting the diversity among the companies studied.

One noteworthy factor is the level of debt, which reached 492% of the companies' payment capacity, coupled with a liquidity ratio of 113.47%. This indicates that, on average, the companies exhibited higher levels of debt compared to their solvency capacity.

Regarding bankruptcy risk, Altman's Z-Score Model (1983) provides insight into the financial health of the companies. A lower Z-score indicates a higher likelihood of financial difficulties. Specifically, a Z-score below 1.8 suggests that a company is facing significant financial distress and has a high probability of bankruptcy. Conversely, a score of 3 or higher indicates a safe zone with a low likelihood of bankruptcy. A Z-score between 1.8 and 3 signifies a gray area with a moderate bankruptcy risk. The average Z-score among the companies studied is 2.692852, placing them in this moderate risk zone. Notably, one company recorded a Z-score of -68.47, indicating severe financial distress, while another reached an impressive score of 298.65, suggesting a very low probability of bankruptcy.

4.2 Model Validation

The linear regression model relies on specific assumptions that guide the estimation and inference of parameters. In the multicollinearity analysis, it was determined that the most influential variables in the model were Index_Transp, Cash_Don, and Comb_Don. To assess their impact, a sample test was conducted by individually removing each of these variables and observing the resulting effects.

Removing any of the three variables individually yielded positive results, indicating an absence of variance inflation. Consequently, the Comb_Don variable was eliminated from the model, as it was determined that Cash_Don and Items_Don alone could adequately address whether the level of transparency in the donation report positively correlates with the growth in research trends. Following this removal, no further inconsistencies in variance were detected.

In terms of the assumptions regarding normality, homoscedasticity, and absence of autocorrelation, the null hypothesis - that these parameters do not affect the model - was rejected. As a result, corrective measures were taken to address the unmet assumptions.

To mitigate the identified issues, two robust regression methods were employed. The first is the Huber-White

robust least squares method, which uses White's heteroscedastic-consistent standard errors to correct for heteroscedasticity. This approach is based on the foundational works of White (1980) and Huber (1967), ensuring that the standard errors of ordinary least squares (OLS) regression are adjusted in the presence of heteroscedasticity, even when the specific form of heteroscedasticity is unknown.

For robustness testing, we also employed Huber's M maximum likelihood method, which addresses the absence of normal distribution and accounts for outliers (Huber, 1996). This method aims to minimize the influence of outliers, thereby enhancing the quality of parameter estimation within the regression model. Together, these proposed solutions are expected to effectively control for biases, providing reliable and robust results in the analysis of differences in differences.

4.3 Analysis of Results

In regression model 1, the Huber-White robust least squares method is employed for validation, regressing the dependent variable Trend_BM&F alongside the alternative financial variable Trend_Company against three primary variables of interest: treatment, pandemic, and treatment#pandemic. These variables represent, respectively, the group of companies that made donations, the isolated pandemic effect, and the interaction effect between the treatment and control groups during the pandemic. Additionally, regression analyses are conducted for various financial control variables.

Regression model 2 is used to confirm the robustness and reliability of the findings by applying Huber's M maximum likelihood method. The results are summarized in Table 4.

Table 4. Regression of variables for media visibility

Regression	(1) - Regression of model validation		(2) - Regression of robustness	
Model	Huber-White model		Huber M	
Variables	Trend_ BM&F	Trend_ Company	Trend_ BM&F	Trend_ Company
Treatment	3.983*** (1.542)	-3.827* (1.959)	4.049*** (1.303)	-3.705* (2.068)
Pandemic	7.141*** (1.539)	1.198 (1.940)	2.858** (1.242)	1.283 (1.971)
Treatment#Pandemic	-0.200 (2.184)	-3.783 (2.669)	-0.960 (1.796)	-4.082 (2.851)
Logsize	-2.597*** (0.685)	-0.343 (0.766)	-1.644*** (0.504)	-0.342 (0.799)
Roa	-0.146** (0.0638)	0.100 (0.104)	-0.0546 (0.0651)	0.0988 (0.103)
Liquidity	-0.367*** (0.121)	0.239 (0.240)	-0.180 (0.151)	0.239 (0.239)
Ebit	0.000867 (0.000656)	-0.0000187*** (0.0000281)	0.00000461 (0.00000376)	-0.000184*** (0.000597)
Logstkhd	1.091* (0.566)	-0.509 (0.719)	0.533 (0.473)	-0.537 (0.751)
Divac	-1.070*** (0.266)	0.239 (0.384)	-0.707*** (0.269)	0.293 (0.427)
Leverage	0.0297 (0.0375)	0.0234 (0.0600)	0.0423 (0.0413)	0.0228 (0.0656)
Market_to_book	0.104	0.189	0.0617	0.168

	(0.169)	(0.231)	(0.146)	(0.232)
CCE	1.110	-58.87***	3.360	-63.55***
	(6.686)	(8.451)	(5.644)	(8.958)
Z_score	-0.00000166	-0.00000132	-0.00000155	-0.00000128
	(0.00000112)	(0.00000144)	(0.000128)	(0.00000203)
Index_transparency	4.466***	8.342***	4.192***	8.749***
	(1.300)	(1.487)	(1.054)	(1.674)
Cash_Don	-13.01***	-16.41***	-13.30***	-17.35***
	(2.470)	(2.793)	(1.914)	(3.038)
Comb_Don	-12.26***	-10.25***	-11.59***	-10.56***
	(2.566)	(2.723)	(1.966)	(3.120)
Constant	45.56***	53,89***	31,59***	53,72***
	(6.574)	(6.796)	(4.651)	(7.382)
Observation	2,337	2,337	2,337	2,337
R-squared	0.056	0.047	0.043	0.046

Notes. Standard Error in parenthesis: *** p<0.01, ** p<0.05, * p<0.1.

The variable Treatment#Pandemic represents a critical utility variable for analyzing Hypothesis 2 (H2) and determining whether to reject the hypothesis. However, this variable did not yield significant results, indicating a lack of statistical confidence for interpreting these findings based on the t-test.

When examining the Treatment and Pandemic variables in isolation, it is evident that their significant positive results align with ongoing research into the predictive power of Google Trends and modern stakeholder theory, which emphasizes the importance of online advertising in corporate strategy (Ding et al., 2020; Liu et al., 2020; Weng et al., 2017).

The findings related to the visibility variable Trend_BM&F in the context of social initiatives corroborate classic stakeholder theory studies that demonstrate a connection between social initiatives and favorable affective, cognitive, and behavioral responses from consumers (Brown & Dacin, 1997), particularly in today's interconnected landscape (Ding et al., 2020; Liu et al., 2020; Weng et al., 2017).

Furthermore, these results align with contractual theory, suggesting that public perceptions of a company can significantly influence consumer attitudes toward its social initiatives (Beaufort et al., 2017). Although supporting social initiatives may appear to be a form of public service, consumers' perceptions of the motivations behind such actions can shape their evaluations of the company, impacting beliefs, attitudes, and intentions (Zhao M., Wang, Zhao, D., & Wei, 2015).

The positive outcomes observed for the Trend_BM&F variables also lend support to legitimacy theory, indicating that corporate philanthropy through donations helps companies achieve public legitimacy - an acceptance of a company as appropriate in terms of social norms and existing laws (Beaufort et al., 2017). In this context, the positive results in the pre-pandemic period suggest that stakeholder acceptance does not directly influence financial variables; rather, it contributes to the development of long-term reputational capital (Qiu et al., 2021).

The market variables Size, ROA, Liquidity, and Dividends were statistically significant in relation to the Trend_BM&F variable. This finding is consistent with research highlighting Google Trends' potential to predict public sentiment and market fluctuations, as evidenced by studies conducted by Bordino et al. (2012), Weng et al. (2017), and Liu et al. (2020), which demonstrated the usefulness of trend data as indicators for predicting decision-making.

The findings for the variable Treatment#Pandemic in relation to the increase in donations during the pandemic indicate a market isomorphism, as defined by institutional theory, which occurs when companies conform to societal norms and adopt socially desirable behaviors (Suchman, 1995).

Regarding the research hypothesis, there was no statistical significance observed when the pandemic effect was applied, leaving insufficient confidence to reject or accept the hypothesis. Nevertheless, the visibility variable Trend_BM&F displayed positive results in the absence of the pandemic effect, reinforcing studies that establish a link between social initiatives and positive consumer responses in the context of corporate philanthropy.

Overall, the findings indicate a trend whereby corporate philanthropy, particularly through donations, generally assists Brazilian publicly traded companies in achieving public legitimacy and enhancing visibility. The instability and state of emergency declared during the COVID-19 pandemic compelled many companies to pursue corporate social responsibility (CSR) initiatives, including substantial donations and targeted aid programs aimed at mitigating community impacts. In these uncertain times, effectively publicizing social responsibility efforts is crucial for garnering public support and evaluating reactions to these initiatives.

5. Final Considerations

5.1 Findings and Conclusion

This study examines the first two years of the COVID-19 pandemic to investigate whether publicly traded Brazilian companies that made donations experienced greater growth in media visibility compared to non-donor firms.

Hypothesis H1 posited that, all else being equal, during the first two years of the COVID-19 pandemic, donor companies would achieve greater media visibility through online search trends compared to non-donor companies. However, the findings showed no statistical significance for the visibility variables when accounting for the pandemic effect, resulting in insufficient confidence to accept or reject H1.

Despite this outcome, the results for the visibility variable Trend_BM&F were favorable when the pandemic effect was not considered. This finding aligns with studies that demonstrate a relationship between social actions and positive affective, cognitive, and behavioral responses from consumers. It is also consistent with contractual theory, which suggests that consumers' perceptions of corporate motives influence their attitudes toward companies and their social initiatives.

These results also confirm that Google Trends is a valid predictor of financial data in Brazil. The consistent behavior of market variables in relation to search trend data reinforces ongoing research into the tool's potential for predicting public sentiment and market fluctuations. By correlating search trends with market movements, the study captured investor interest, highlighting search trends as useful indicators for forecasting decision-making.

Overall, the findings suggest that corporate philanthropy through donations helps companies gain public legitimacy, increase visibility, and improve financial performance. The rise in donations during the pandemic supports the theory of market isomorphism, which, according to institutional theory, occurs when companies align with social trends and adopt socially desirable behaviors.

In conclusion, the study's objectives and research questions were addressed, reaffirming that corporate social responsibility and the donations announcement generally bring financial benefits. However, these effects were not statistically significant during the pandemic. The findings underscore the role of corporate philanthropy in helping publicly traded Brazilian companies achieve public legitimacy, which occurs when a company is viewed as socially appropriate and legally compliant by the public, including shareholders and employees. Furthermore, the research highlights Google Trends as a valid predictor of public sentiment.

While this study does not specifically focus on the stakeholder perceptions of corporate social responsibility (CSR), it was possible to observe the influence of the COVID-19 pandemic in this sense. Expectations have risen, with increasing demands for companies to demonstrate genuine commitment to social and environmental well-being. According to stakeholder theory, stakeholder needs and concerns have expanded to include new requirements, such as advocating for social equity through inclusion, fostering long-term environmental commitments, enhancing transparency, and promoting sustainable growth. The pandemic has heightened the demand for CSR initiatives that are more deeply aligned with societal interests.

5.2 Policy Implications

This research contributes to the literature by examining public reactions to the disclosure of online corporate giving using a trend index that is not well-explored in academic financial research. It reinforces the idea that consumer sentiment, as measured by Google Trends, can predict market fluctuations and track social visibility, making it a valuable tool in studies on social responsibility. The expansion of discussions leads to the development of new studies approaching different aspects. Moreover, accounting literature has expanded to

discuss new forms of disclosure, as well as legislative and regulatory developments addressing donations and corporate social responsibility, with the aim of promoting transparency and fostering a culture of philanthropy that aligns companies' missions with societal benefits.

From a practical perspective, this study enables managers to assess their company's visibility and societal perception. This assessment contributes to the legitimacy of the company's role within society. By leveraging credibility gained through the construction of a strong public image, managers are better equipped to make transparent and well-informed decisions.

5.3 Study Limitations

This study has limitations worth mentioning. First, the lack of standardized data on donations in financial reports or explanatory notes hinders comprehensive analysis, as many companies do not report donations or specify the characteristics of these gifts. Second, by the end of data collection in December 2022, the World Health Organization had not officially declared the end of the pandemic, preventing an analysis of the post-pandemic period. Third, the pandemic's unpredictable peaks and fluctuations introduce bias, making it difficult for the chosen model to account for all economic and social factors during this period. Finally, because the study sought to provide an exploratory analysis of market fluctuations in general, this research did not control for sector-specific effects.

5.4 Future Research

Future research should incorporate variables that account for different pandemic peaks, such as lockdown announcements, vaccine rollouts, hospitalization rates, and government economic measures. Additionally, sector-specific analyses could provide more detailed insights into the effects of corporate donations.

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Informed consent

Obtained.

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Data sharing statement

No additional data are available.

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