



Relationship between reputational aspects of companies and their share price in the online environment

María-Mercedes Rojas-de-Gracia*, Ana-María Casado-Molina, Pilar Alarcón-Urbistondo

Dpto. Economía y Administración de Empresas, Universidad de Málaga, Facultad de Comercio y Gestión, Avda. Francisco Trujillo Villanueva, 1, 29071, Málaga, Spain

ARTICLE INFO

Keywords

Integrity of governance
Corporate reputation
Transparency
Ethical behavior
Financial analyst recommendations
Daily returns

ABSTRACT

Although the relationship between many reputational aspects of companies and their share price have received attention from researchers, most studies have been directly or indirectly based on opinions collected through surveys or interviews. This work provides evidence of the existence of such relationships in the online environment. This involved collecting opinions that, in general, are published spontaneously, come from a range of different audiences and represent a large volume of information. This study shows that a company's integrity of governance contributes significantly to the formation of its corporate reputation. This is of great importance since corporate reputation is one of the factors that financial analysts take into account when deciding whether or not to recommend investing in a company's shares. In turn, both the perception of a company's integrity and analysts' recommendations have an impact on share prices variations.

Credit author statement

María-Mercedes Rojas-de-Gracia: Methodology, Validation, Formal analysis, Investigation, Data curation, Writing – original draft, Writing – review & editing; Ana-María Casado-Molina: Conceptualization, Investigation, Data curation, Writing – original draft, Writing – review & editing, Supervision; Pilar Alarcón-Urbistondo: Investigation, Data curation, Writing – original draft, Writing – review & editing

1. Introduction

There is extensive literature on how to construct models to manage social perceptions [1,36,59,68] and much research has been done on reputation management in corporate strategies [2,18,34,49]. In the same regard, corporations are working hard to define new reputation models allowing them to discover and understand the relationships with their different audiences. These models facilitate ad hoc studies that explain how the corporate reputation (CR) of an organization is built from the public perception of how it carries out its activities. Among them is the RepTrak® model proposed by Fombrun, Ponzi and Newburry [44], which establishes the dimensions for measuring CR.

Nowadays, a particularly important element of CR is the integrity of a company's management policies, which is reflected in its daily operations. Although the RepTrak® model does not expressly use the term integrity as one of the dimensions of CR, when it refers to the governance dimension it is implicitly referring to the integrity with which

this governance is being carried out. That is, given that these authors state that a good reputation is associated with good governance, it is necessary to explain what this means for them, as the term governance by itself does not clarify this. There are various definitions of what good governance means. For example, the World Bank associates it with effectiveness in formulating and implementing management policies [110]. However, this is not the sense in which the RepTrak® model uses this dimension. Its definition is more in line with that of the United Nations, which, in addition to considering efficiency and effectiveness, includes, among others, characteristics that are related to transparency, lack of corruption, justice, and responsibility for their actions in society [95]. In fact, these are essentially the characteristics included in the definition of governance produced by Fombrun et al. [44: p. 7]: “stakeholder perceptions of a company as ethical, fair and transparent.”

Given this, in this work we have chosen to be more specific and use the term integrity of governance as one of the dimensions of CR. This term has been used by various authors who have inextricably linked good governance, understood in a similar way to that seen in the RepTrak® model, with integrity [30,39,53,56–58]. Consequently, in the field of CR, it can be stated that integrity of governance is formed by three components: ethical behavior, transparency, and fair and responsible use of power [23,44].

Ethical business behavior refers to behavior that respects the standards and values used to assess the results of corporations' actions and the way in which people or society as a whole are affected [55]. Trans-

* Corresponding author.

E-mail addresses: mmrojasgracia@uma.es (M-M Rojas-de-Gracia); acasado@uma.es (A-M Casado-Molina); pilar.alarcon@uma.es (P. Alarcón-Urbistondo)

parency is understood as the open, non-secretive and visible action of organizations, making the processes they carry out clear and easy to see Ref. [96]. Finally, Huberts [57] believes that the misuse of power in organizations violates the integrity and justice of corporate governance, due to factors associated with hierarchy and power imbalances. Examples include favoritism and discrimination [83].

Companies with the highest reputations have departments that ensure that they act with integrity [101]. This is because they are concerned about measuring how a lack of integrity could influence not only the sustainability of their business in the long term [88] in general, but also more specific aspects related to CR, such as the attitudes they generate in stakeholders. According to several authors, one of the most important types of stakeholder is the shareholder or investor. These are frequently influenced by financial analysts, who generate favorable or unfavorable recommendations about whether or not to invest in a corporation's shares, which may affect the share price [19,45,113]. In turn, these influencers' recommendations may be based on the CR of these companies [12,20,91]. Thus, starting with the concept of the integrity of governance as one of the fundamental pillars in the construction of a company's CR, it is very interesting to understand how CR in general, and integrity of governance in particular, can affect an aspect as important as share price.

In principle, the literature provides evidence on the relationship between these reputational aspects and share price [7,47,86]. These studies have frequently measured companies' CR and integrity of governance through surveys or interviews performed by one or more researchers. However, there is another type of information on the behavior of companies, which is published on the Internet and which offers characteristics that deserve to be taken into account. Firstly, in the online environment, opinions on the way companies behave are often published spontaneously and immediately after the event being judged, and then disseminated at high speed [98], offering little room for companies to react and take the appropriate steps or, where appropriate, deny possible fake news. Secondly, the online environment offers a whole range of sources that encourage the generation of many public opinions. That is, it allows opinions to be collected not only from media organizations and experts on the matter [85], but also from the social networks, where the public find the perfect setting to be heard [37,38]. And, thirdly, these opinions interact and influence each other in such a way that one post will encourage third parties who read it to also express how they feel [67,82].

For all these reasons, these opinions collected in the digital environment provide very valuable nuances when it comes to understanding

society's perception of the integrity of companies. Therefore, it seems appropriate to test whether this exemplary behavior of companies, measured in this way, has direct and indirect effects on share price. This is the main focus of this study. Given the immediacy and large volumes of data handled in digital conversations, to achieve the objective in this study we use big data techniques which allow us to offer representative figures that ensure a statistically robust study.

Companies are undoubtedly interested in understanding the possible stock market ramifications of perceptions about their daily activity. Moreover, given the tools available nowadays that allow us to monitor the content published in the online environment, companies can react faster to potential problems, either by clarifying the necessary aspects or rectifying their performance.

2. Theoretical background and development of hypotheses

Given the complex world in which we live, it is not easy to identify why companies obtain certain results. This is even more complicated if it involves analyzing aspects as difficult to measure as those related to an organization's CR. In other words, in a hyper-connected society with a huge number of publications and news items about different companies, the different perceptions about business activities are shared and must be taken into account by companies concerned about maintaining a good CR. Due to this complexity, it would be interesting to examine the concept of CR by focusing on one of its specific aspects, namely integrity in the governance of companies. Likewise, and for the purpose of this simplification, it would make sense to analyze the relationship between CR and another specific aspect, namely financial analysts' recommendations on whether or not to invest in companies' shares. To complete this analysis, it also seems appropriate to test the way in which both integrity and recommendations are related to share price. Although these are individual elements of the actual wider situation, as can be seen in Fig. 1, they help to shed more light so that, in the future, we can improve the CR models that exist today.

2.1. Relationship between integrity of governance and CR

Studies linking integrity with a company's CR have done so from a personal perspective or an institutional perspective. In the first of these, CR is positively related to the integrity of the people who form part of the company, both managers [52,64,79,100,107] and all other staff [100,107]. In the second perspective, this relationship has also been tested considering the integrity associated with corporate management policies [23,29,44,99,100].

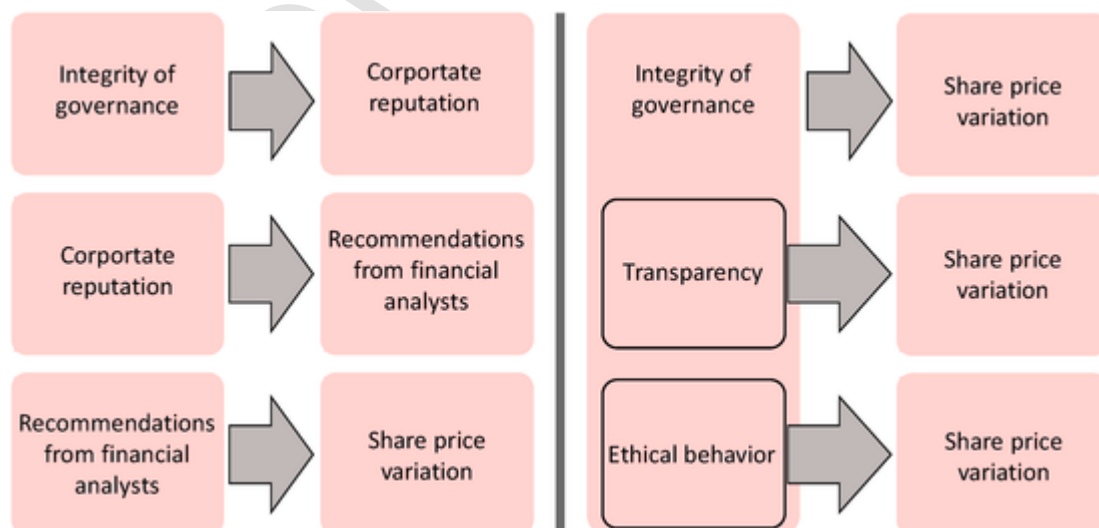


Fig. 1. Relationship of reputational aspects with each other and with share price variation.

The integrity of governance analyzed in this work falls under the institutional perspective. Although the literature on this subject to date is not extensive, there is evidence to conclude that the integrity of governance is indeed one of the dimensions that makes up CR [23,44]. However, this relationship has not been tested by measuring both constructs, integrity of governance and CR, through information published on the Internet. Therefore, where the relationship between the two has been examined on a basis that goes beyond mere theoretical reflection, these variables have been measured using data from reports prepared by other sources, such as, for example, the value creation index in Forbes magazine [29] or through interviews with different stakeholders [44]. The strength of the relationship between these two variables has not yet been studied, as integrity is not the only component that contributes to the measurement of CR.

Consequently, we can add to the results of these studies in two regards. Firstly, it would be interesting to test whether the relationship between the integrity of governance and the CR of companies is effectively demonstrated using information published on the Internet. This information has a spontaneity that is not found in surveys, as stakeholders speak out about the aspects that really interest them without being prompted by a researcher's questions [25,66]. Secondly, if this relationship is found, its strength can be tested. Therefore, the first working hypothesis proposed is:

H1 = The integrity of governance perceived in the online environment has a positive impact on the CR perceived in the online environment.

2.2. Relationship between CR and financial analysts' recommendations

In order to understand the impact of CR on share price, it is important to consider in turn how financial analysts are influenced by public opinion about a company's activities. That is, we need to analyze the different signals that stock analysts use to assess the wisdom of investing in certain shares [48]. In fact, reciprocally, the recommendations of these analysts offer the company tangible clues about the extent to which they have met stakeholder expectations [41]. However, to analyze the relationship between CR and these recommendations, we need to consider CR in all its dimensions. Thus, according to the RepTrak® System proposed by Fombrun et al. [44], in addition to integrity of governance, the other dimensions that help to define reputation are: experience with the products or services; the innovative nature of the company; working environment; responsibility to the public; leadership of the managers and the economic-financial performance of the company.

For obvious reasons, studies that have analyzed the relationship between CR and analysts' recommendations have been fundamentally based on the economic-financial performance of companies, establishing that, under normal conditions, when this is positive, analysts' recommendations are favorable [12,20,91]. Corporate social responsibility (CSR), which basically falls under the dimension of responsibility to the public, has also been positively linked to financial analysts' recommendations [41,60,73]. Other dimensions of reputation have elicited less attention from researchers. One exception here is the study by Gabbioneta, Ravasi and Mazzola [48] who found that financial performance, vision and leadership, financial disclosure and corporate governance show a high correlation with the general attitude of stock analysts towards a company. However, they point out that these aspects do not have a direct effect on the behavior of analysts, that is, on the content of the recommendations they issue.

In these studies, in order to measure CR and its different dimensions, the authors used secondary information from surveys [12,41,48], reports by financial analysts [20,91] and databases such as Thomson Reuters [60,73], which, in turn, are based on annual re-

ports, NGO websites, CSR reports, company websites, stock exchange filings and news sources [92]. In other words, they ignore, for example, the opinions that come directly from the public and that are continuously published in the online setting.

Only the studies by Casado-Molina et al. [24] and Kim and Youm [63] use a variety of online sources that include the opinions of society as a whole to measure CR, although there are differences between the resulting findings. Thus, Casado-Molina et al. [24] reach a conclusion similar to that of Gabbioneta et al. [48], since they conclude that negative experiences and emotions about a brand in various dimensions of CR do not necessarily generate negative recommendations from financial analysts. Meanwhile, in contrast, Kim and Youm [63] analyze corporate Twitter accounts and show that both tweets sent by the company and those sent by customers can have a significant impact on analyst recommendations. Therefore, given the scarcity of studies measuring CR based on the opinions generated in the online environment from various audiences, both experts and non-experts, and their relationship with analysts' recommendations, and in view of the most common conclusions from the research that has examined this relationship, the following second working hypothesis is proposed:

H2 = The CR perceived in the online environment has a positive impact on the recommendations that financial analysts publish on the internet about investments in a company's shares.

2.3. Relationship between financial analysts' recommendations and share price

By providing investment advice, financial analysts influence the value of the company through increasing investor awareness, as well as the demand for a company's shares and, therefore, their price [89,108]. The literature dedicated to examining share price responses to analysts' recommendations has not found unanimous results. Some authors have concluded that there is no such response [11,13,71,109]. However, the general feeling is that, with a large number of nuances, studies have found a relationship between recommendations and share price [8,11,14,32,46,50,51,60,62,65,72,75,90,93,108].

Apart from these results, it is worth noting that, in general, studies have based their conclusions on analyst reports provided either by the companies for which the analysts are working [11,13,14,32,51,62,65,71] or by databases that are normally subscription services [8,11,46,60,72,75,90,93,108]. Examples of such databases include Compustat North America and Zacks Investment Research.

Consequently, the opinions of many independent financial analysts, who offer their opinions in open forums to which many small investors have access, are not taken into account. This is the case with forums such as Rankia (www.rankia.com) and Kostarof (www.kostarof.com), which are financial communities with a large number of registered users in which all kinds of stock market information are offered, including recommendations, that aid financial decision making. As a consequence, in our third working hypothesis, we propose testing the relationship between analyst recommendations and the variation in the share prices of companies using the information contained in these types of forum found in the online environment:

H3 Analyst recommendations made in open financial forums in the online environment will have an impact on a company's stock price.

2.4. Relationship between integrity of governance and share price

Most research measures the influence of the company's entire reputation, which, as already indicated, consists of various dimensions, on certain aspects of the business, including financial performance indicators [31,77]. However, few studies measure the impact of the individ-

ual dimensions affecting reputation on financial business performance [102]. This includes the integrity of governance as one of the dimensions that explains corporate reputation. In this regard, when authors have studied the relationship between integrity and an aspect related to the economic-financial results of companies, they have done so mainly from the framework of the manipulation of prices in the stock market. They show how the activities of some dishonest traders, who use commercial tactics to obtain profits, result in an alteration of share prices and a destabilization of the financial markets [47,86,87,112].

When such actions are uncovered, the regulatory bodies act accordingly. For example, the United States Securities and Exchange Commission (SEC) has imposed various fines for manipulating stock recommendations for personal gain [15,84,105]. In turn, this discovery modifies the perception of the integrity of the company involved, so it can influence the results of companies and the actions taken by investors [27,35,78,94,104].

Again, in this case, the authors who have examined the issue have measured the perception of the integrity of companies without considering the opinions that society publishes, in a generally spontaneously way, on the social networks. Consequently, no work has been able to test the way in which all audiences, without being prompted by a question, will influence the stock market value of a company's shares. We consider that this is of vital importance, mainly because in social environments, information relating to scandals is having an ever greater impact on the overall performance of organizations. The fourth working hypothesis is formulated within this context:

H4 = The integrity of governance perceived in the online environment has a positive impact on share price.

2.5. Relationship between transparency and share price

There is a certain amount of evidence in the literature on the relationship between share price and two of the attributes that, according to the RepTrak™ model, comprise the integrity of governance, namely transparency and ethical behavior [44], as one of the factors that explains reputation. For the first, Alonso [6] studies the measurement of transparency that companies are conveying through their presence on the Internet. This involves analyzing the information offered on corporate websites. She confirms that the companies with the highest market value are the companies most willing to show transparency, making electronic means of participation available to their shareholders. This author argues that this transparency is more palpable in the oil and energy sectors, while the opposite can be said for financial and real estate services. In fact, Baraibar-Diez, Odriozola and Fernández [10] argue that transparency is a key point for the efficient development of economic activity. Transparency in communications and a fluent dialogue using technology, especially online sources, generates more confidence and a favorable perception of the integrity of the company Dellarocas [33].

On the other hand, Cormier and Magnan [28] argue that transparency, measured as the level of information asymmetry between managers and investors affects the forecasts of financial analysts in general, as well as the stock market value assigned to the reported earnings of a company. Likewise, this asymmetric information handled by sophisticated investors produces a decrease or increase in prices in the stock market [106]. In addition, it has been observed that the disclosure and transfer of information is important in emerging economies, since it can reduce the risk of Chinese companies in the stock markets [111]. Finally, it should be noted that as a result of the recent financial crisis, which had such a strong impact on the banking sector, recent research has pointed to transparency as a fundamental variable due to its effect on other business variables [4]. In the same line, Akhigbe, McNulty and Stevenson [3] argue that there is a positive

association between transparency and bank holding company financial performance.

Apart from these results, when examining the relationship between transparency and share price, no studies have been found that measure the former by including the perception that the public generally expresses about it on social networks in the online environment. With this in mind, and taking into account the results obtained so far, we propose the fifth working hypothesis:

H5 = The transparency perceived in the online environment has a positive impact on a company's share price.

2.6. Relationship between ethics and share price

The interest aroused by the study of ethics in companies has been characterized, almost since its emergence in the 1950s, by identifying the relationship between ethics and the benefit this has for firms. In this regard, Bowie [16,17] contradicts what he considers to be the widespread opinion that ethics and profits are inversely related. Although he is unable to conclude that ethics always lead to higher profit margins, he offers many examples where ethics have had a positive impact on results, given that they provide companies with a source of competitive advantage. The examples include a company providing meaningful work to its employees, which may increase their productivity. Another example is the prompt payment of suppliers, which will allow the company to have a wide range of potential suppliers who want to do business with it. Along this same line, many other authors have found that the relationship between ethics and profits is positive in the business world [27,78,94,104]. In contrast, Capelle-Blancard and Petit [21] conclude that, on average, companies with negative events in their ethical behavior experience a fall of 0.1% in their market value, while companies do not obtain anything on average from positive announcements.

Worthy of special mention is the work by McMurrian and Matulich [74], who argue that there are still many companies with unethical business practices that will not be discovered and, therefore, these will not have negative consequences for the company. This view is shared in part by a series of studies establishing that an increase in company value is only possible if the different stakeholders have a positive perception of the ethical behavior of the companies [5,35,42,43,70,76,97,103].

Although several of these studies have carried out their analysis on the basis of the Covalence Ethical Quote (CEQ) [21,35,76], which is an index that gathers information using search engines, individual websites and different correspondents, public opinion expressed spontaneously on social networks has been ignored when testing the relationship between perceived ethics and share price. Only the studies by Ramos and Casado-Molina [81] and Casado-Molina et al. [24] find that public opinion on the behavior of banks expressed in the online environment, including the social networks, shows a moderate positive correlation with share price. This leads us to the sixth and final working hypothesis:

H6 Ethical behavior, as perceived in the online environment, has a positive impact on share price.

3. Research methodology

3.1. Sample

To achieve the proposed objectives, six variables have been taken into account, of which five refer to intangible aspects of the company (transparency, ethical behavior, integrity of governance, CR and recommendations), and one relates to the results, namely share price. Although the first idea was to analyze the variable called "responsible use of power", due to this being the third attribute that, together with

transparency and ethical behavior, forms integrity of governance [44], this was not finally possible. This is because, after a first check, we realized that this is a topic that is not usually discussed in the online environment. That is, when it comes to private companies, which are the subject of our study, unlike in other areas, such as public companies or politics, the aspects related to the responsible use of power are not easily perceived by society. For this reason, we decided to exclude it from this work.

As can be seen in Fig. 2, which contains all the steps followed in the methodology, for the empirical analysis, a sample of 36 private companies was used, randomly selected among large Spanish corporations listed on the stock market, active on May 17, 2017, and with total assets exceeding 450 million euros. The characteristics of the aforementioned sample and its sectoral distribution appear in Table 1. The information obtained covers the period from April 17 to May 16, 2017. For the five variables covering intangible aspects, these observations are those corresponding to the 30 days studied, plus the 15 days prior to April 17. However, the figures from these 15 previous days were only used for the calculation of the daily ratio of the intangible variables. This daily ratio is calculated with a time horizon of 15 days because the intangible variables covered in this study are not extracted to measure specific events, but rather are used to measure the general per-

ceptions that stakeholders have about a certain company. The multiplication of these 45 days by the 36 companies analyzed gives the total of 1620 observations to determine the intangible variables. Furthermore, only the thirty days of the aforementioned study month were taken into account for the data relating to share price.

3.2. Data collection

The collection of share price data did not present any major problems, since it is public data that was obtained from the website of the Spanish Securities and Exchange Commission (www.cnmv.es) and the Madrid Stock Exchange, which is the body in charge of the supervision and inspection of the Spanish stock markets and the activity of those involved in them. Given that the companies analyzed are heterogeneous, it was considered appropriate for the analysis to use the data relating to share price variations, also known as daily returns, rather than the value of the prices themselves. To this end, the variation was obtained by subtracting the previous day's share price from the closing price for that day, expressing this change as a percentage. For the days on which the stock market was not operating, such as bank holidays and weekends, the last variation figure calculated was used. On the

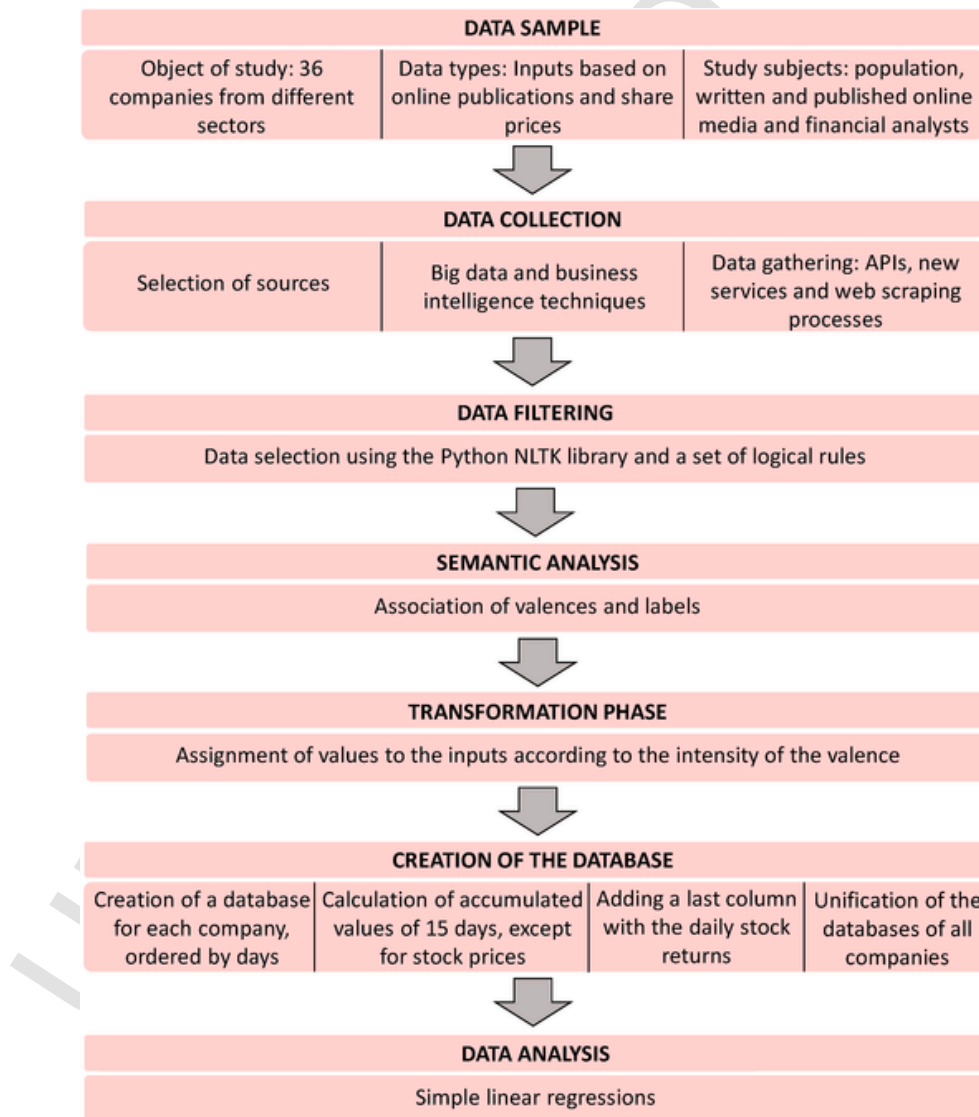


Fig. 2. Phases of the methodology.

Table 1
Industry distribution of sample.

Industry	Number of firms	SIC code
Manufacturing	15	20–39
Finances, insurance, real estate	9	60–67
Services	9	70–89
Construction	3	15–17
Total	36	

Note: SIC code is the Standard Industrial Classification code.

other hand, the values of the transparency, ethics, integrity of governance and CR variables have been formed with online perceptions taken daily from the social network Twitter, news items published in the main Spanish digital journals. In addition, specialized open business forums were used to extract financial analysts' recommendations on investing in shares.

The data collection process for these variables was carried out using public and private APIs and through scraping processes, fundamentally with the help of the software import.io, thereby managing to capture information. In the case of Twitter, a filter was performed through its own search interface using as the keyword the brand of each firm, as well as every alias or synonym used by users of this social network to refer to each company. After this filtering process, 95,547 tweets were acquired throughout the study period.

Regarding the broadcast media, the most important online daily journals were accessed every day. For this study, a total of 532 news items related to the sample were extracted. Using the Really Simple Syndication (RSS) link for each journal, its agenda setting was downloaded automatically. Then, an automated reading of the headline of each news item was carried out and, if it contained the trade mark or a synonym of the name of the company, the body of the news was accessed through its URL.

For forums, a total of 13 specialized forums on different topics were analyzed, such as the economy, businesses, banks, insurance and consumption, and different target audiences. Through scraping processes, we acquired 6234 posts from those forums, relating to the sample of companies. In each forum, several discussion topics are published daily and users generate their own posts as an answer to each topic.

3.3. Data analysis

As survey data are not used in this study to measure the variables that refer to intangible aspects, instead taking data from online comments published in the form of text, we need to use big data and business intelligence techniques. These procedures allow us to extract a large volume of qualitative data from the online environment and transform them into quantitative data for subsequent processing and analysis. Therefore, once the information from these sources had been collected, all the data referring to the variables for intangible aspects, that is, all tweets, online news and forum posts (hereinafter, inputs) were inserted into a single database in order to make them available to the analysis engine.

Given that not all of these inputs are valid for the analysis, they were filtered after being collected and compiled. In keeping with other similar studies, the Python NLTK library was used to do this [24]. By applying a set of logical rules, the elements that did not refer to the companies analyzed and/or the qualitative variables for analysis were eliminated. For example, in order to be able to analyze inputs related to the transparency of Company X, rules of the following type were defined: "Company name X" AND "inform". In this way, a tweet such as: "[Company name X] did not inform us that the rate would increase after the third month. They are crooks" was considered valid for company X within the transparency variable.

This classification was not exclusive, i.e., the same input could be assigned to several variables. This occurs mainly for the integrity variable, since it includes the attributes referring to both transparency and ethical behavior. Similarly, non-transparent behavior, if clearly intended to cause some kind of harm, is also considered unethical, as would be the case in the previous example. Moreover, given that the RepTrak® model used in this work assumes that integrity of governance is one of the dimensions of CR, the inputs classified in the integrity category were also classified in the CR category. It should be noted that while it may appear nonsensical to demonstrate their relationship given that the first forms part of the second, this is not actually the case. This is because since there are several dimensions that make up CR, the relationship between it and integrity of governance could be so weak that it does not yield a statistically significant result, explaining only a small proportion of the variance.

Once cleaned, a semantic analysis was performed using a classification algorithm based on an Artificial Neural Network (ANN). The text corpus endorsed by the Spanish Society for Natural Language Processing (SEPLN for its Spanish initials) was used for this analysis, which contains over 70,000 phrases and uses the open source library TensorFlow. This operation allows a specific valence (hatred, reject, indifference, acceptance, admiration) [54] to be associated with each of the inputs of transparency, ethics, integrity and CR, and a label with the recommendation inputs (buy, outperform, hold, underperform, sell) [24]. This association of valences and labels allows us to simplify the subsequent analyses. Thus, with valences, the numerical values to be assigned to each of the inputs are narrowed down, and with labels, we can directly assign a value to the input, as can be seen in Table 2.

To finish specifying the value of the inputs for the transparency, ethics, integrity and CR variables, a second analysis is carried out using a Bayes classifier trained with a corpus. Within the range of values associated with each valence, this analysis assigns a specific value based on the intensity of the implicit sentiment in each input. Thus, continuing with the previous example, the transparency of company X was assigned a value equal to 1 by the algorithm, given that it would fall within the hate category ($X < 2$) and, although it includes a disqualification (crooks), it is not classified as one of the most aggressive. Table 3 contains some examples of how these inputs were classified and valued.

Once the inputs had been transformed into values, they were stored in a different database for each company. Each was ordered by day, in such a way that the first column contained the dates, followed by the transparency, ethics, integrity, CR and recommendations values. Given that there could be more than one value for each variable on the same day (for example, various tweets that talk about an ethical aspect of a

Table 2
Categories.

Transparency, Ethics, Integrity of governance, CR	Value
Hatred	$X < 2$
Reject	$2 \leq X < 4$
Indifference	$4 \leq X < 6$
Acceptance	$6 \leq X < 8$
Admiration	$X \geq 8$
Recommendations	
Buy	10
Outperform	7.5
Hold	5
Underperform	2.5
Sell	0

Note: X means the value assigned to the item valued.

Table 3

Examples of the classification and valuation of the transparency, ethical behavior, integrity of governance and CR inputs.

Date	Input	Categories	Tone	Value
June 04, 2017	[Company name] presents its two new models	CR (innovative nature)	Indifference	5.5
December 04, 2017	[Company name] a pioneer of salary transparency in Spain	Transparency/Integrity/CR (integrity of governance)	Admiration	9.0
01/17/2017	[Company name] sells products obtained through slave labor. Shameful!	Ethics/Integrity/CR (integrity of governance)	Hate	1.0
01/17/2017	[Company name] among the corporations that choose profits over people	Ethics/Integrity/CR (integrity of governance)	Hate	1.5
04/25/2017	Many thanks to all the employees at [company name]. Although they took their time, they looked after me in the end	CR (experience with products or services)	Acceptance	7.0
04/28/2017	Lots of misleading advertising from [company name]. You pay and they don't respect the coverage!!! Fraud!	Transparency/Ethics/Integrity/CR (integrity of governance)	Hate	1.0
April 05, 2017	[Company name] and ONCE Foundation strengthen their agreement to employ people with a disability	CR (responsibility to the public)	Admiration	9.0
October 05, 2017	The Court annuls a purchase of shares in [company name] for misleading information about its solvency	Transparency/Ethics/Integrity/CR (integrity of governance)	Reject	2.5

company), the value assigned to that variable on that day was their arithmetic mean. In addition, if on one day there were no comments for a specific variable or recommendations from financial analysts, the daily rate for the previous day was used, since it was understood that perceptions had not changed.

To consider the historical trend over the 15 days and avoid the values of the variables depending on the perceptions, news and recommendations on a single day, another column was added to the database, next to the daily data, showing the cumulative data over this time period. This was obtained as a weighted average of the total score of in the 15 days considered, linearly decreasing the weight of the information for each of the days as a function of time. A final column was added at the end with each day's daily stock return values. A single database with the information on all companies was built as a final step, forming the definitive working database. This database was made up of 1080 rows (30 days multiplied by 36 companies) and seven columns (one with the date; another five with the cumulative data on the variables transparency, ethics, integrity, CR and recommendations; and another with the daily stock returns).

For the statistical processing of the data a series of linear regressions were carried out in which the dependent and independent variables changed depending on the hypothesis to be tested. Before testing the hypotheses using simple linear regression, for each of the independent variables it was necessary to test the classic assumptions of normality, absence of autocorrelation and absence of heteroscedasticity of the residuals. This was carried out using the Kolmogorov-Smirnov, Durbin-Watson and Breusch-Pagan tests respectively. These linear regressions also include the interaction effects that some variables may have on others, in order to test the combined effect on each of the dependent variables in the respective regressions. In this regard, we must point out that those cases in which, according to the scientific literature, one of the possible interaction factors is a component of the other have not been included. In other words, the interactions between transparency, ethical behavior, integrity of governance and CR have not

Table 5

Testing classical assumptions of simple linear regression.

Regression	Dependent variable	Independent variable	Z Kolmogorov-Smirnov	Durbin-Watson	LM (observed value) Breusch-Pagan
1	Corporate reputation	Integrity of governance	0.740 (p-value = 0.192)	2.141	0.979 (p-value = 0.321)
2	Recommendations	Corporate reputation	0.250 (p-value = 0.497)	1.531	1.270 (p-value = 0.243)
3	Share price variation	Recommendations	0.203 (p-value = 0.771)	2.037	0.084 (p-value = 0.772)
4	Share price variation	Integrity of governance	0.876 (p-value = 0.176)	1.788	0.461 (p-value = 0.497)
5	Share price variation	Transparency	0.356 (p-value = 0.390)	2.478	0.321 (p-value = 0.571)
6	Share price variation	Ethical behavior	0.670 (p-value = 0.254)	1.640	0.011 (p-value = 0.831)

Table 4

Descriptive analysis of independent variables.

Variable	Mean	SD	Max	Min
Transparency	6.380	4.246	10.000	0.000
Ethical behavior	6.344	2.140	10.000	0.000
Integrity of governance	6.355	1.876	10.000	0.000
Corporate reputation	6.425	1.501	9.875	1.898
Recommendations	5.223	3.829	9.378	1.643

SD: Standard Deviation; Max: Maximum value; Min: Minimum value.

been considered. This is due to the fact that, as there is a possibility that some are included in others, a positive result could not be considered a joint effect of both on the dependent variable.

4. Results and discussion

With the aim of testing the hypotheses suggested in the current study, and prior to performing the linear regressions, Table 4 shows the statistical description of each of the intangible variables indicates a relative dispersion regarding the average values. Additionally, the variable integrity and the attributes used for constructing it, transparency and ethical behavior, show similar values, slightly higher than 6.3. Nevertheless, the CR variable obtained reaches its highest value through online sources (mean = 6.425) when the recommendation index is lowest (mean = 5.223). In any case, the value is above five for all the variables, indicating perceptions and recommendations inclined towards the positive aspects.

Moreover, as can be seen in Table 5, the application of the simple linear regression technique is found to be appropriate. This is because in all regressions proposed, the Kolmogorov-Smirnov test (normality of the residuals) has a significance level higher than 0.05; the Durbin-Watson test (absence of autocorrelation of the residuals) has values be-

tween 1.5 and 2.5; and the significance of the Bresusch-Pagan test (absence of heteroscedasticity of the residuals) is greater than 0.05 in all cases.

As shown in Table 6, the existence of a linear relationship between integrity of governance and CR is demonstrated, with the former being the independent variable and the latter the dependent variable. Although the regression coefficient has a value of 0.128 and, therefore, we cannot talk about a high coefficient, it is statistically significant. In addition, the value of R^2 , that is, the square of the Pearson correlation coefficient, indicates that integrity perceived by stakeholders expressed in the online channels explains 67.1% of the variability of the CR. The interaction effect between the integrity of governance and share price variation is also tested. This indicates that the effect of integrity on CR increases slightly if share price variation is higher. This seems logical taking into account that the positive perception that a company acts with integrity, together with the experience of a rise in its share value, has an effect on the CR perceived by stakeholders. The existence of the relationship described confirms working hypothesis 1, which is in keeping with the results of the studies that have examined this relationship [9,23,29,44,80,99,100]. However, the results found here allow us to add that integrity is not just another component of reputation, but rather explains a large part of the variability of CR in online environments.

In addition, the hypothesis that financial analysts' recommendations are related to the reputation that emerges from online environments is also confirmed. In particular the regression coefficient is equal to 5.709, being statistically significant. However, CR only explains 5.9% of the variability of the recommendations made by financial analysts, according to the R^2 statistic. However, the fact that the R^2 is relatively

low does not invalidate this result. It should be noted that the intention in this work is not to build an explanatory model of how the differences between them. Evidently, financial analyst recommendations are not influenced solely by the online comments of society in general. Therefore, hypothesis 2 is confirmed. This confirmation, together with the conclusions found in other studies, again shows that when all opinions in the online environment are taken into account, those of both experts and non-experts, led by a researcher or spontaneously, the CR is taken into account by financial analysts when making their recommendations. These conclusions support those found in other studies, both in the offline environment [12,20,41,60,63,73,91]. They therefore contradict the findings of Gabbioneta et al. [48] and Casado-Molina et al. [24], who found no relationship between negative comments about the companies and analyst recommendations.

The third relationship tested in Table 6, that is, the relationship between recommendations and share price variation, is also demonstrated, with a statistically significant coefficient equal to 0.032. In this case, the proportion of share price variability explained by analysts' online recommendations is equal to 22.4%. Consequently, hypothesis 3 is also demonstrated. In other words, this result reinforces the idea that, despite the suspicion that these recommendations may be biased due to particular interests, as demonstrated by Mikhail Walther and Willis [75], they also have an effect on daily returns in the case of opinions expressed in open forums on the Internet.

Having verified the hypotheses that allow for the establishment of relationships between integrity of governance, CR, recommendations and share price variation, another of the objectives of this research is to analyze the relationship between integrity, and two attributes that make it up, namely transparency and ethical behavior, and share price variation. According to the results shown in Table 6, integrity is a significant factor and has a positive impact on share price variation in the stock market. The regression coefficient is equal to 4.735, with a p-value < 0.001. The interaction effect between integrity of governance and recommendations also has a significant coefficient. In other words, the positive perception that a company behaves with integrity, together with a set of favorable recommendations to buy its shares, has a joint effect on the daily returns it provides to its investors. Therefore, hypothesis 4 is confirmed; the higher the level of integrity perceived online, the higher the share price variation. However, according to the R^2 coefficient, integrity does not explain a high proportion of share price variation (11.3%), which seems quite logical given the number of factors that may be involved in price changes. Despite this figure, the verification of the existence of a relationship between business integrity and fluctuations in share prices is an interesting result, largely for two reasons: (1) As far as we know, it is the first study to demonstrate this relationship in the online environment, which creates an opportunity to continue with its investigation given its importance for companies; (2) It is a result that is supported by the large volume of opinions and news stories generated on the Internet.

However, the attributes of integrity seem to have a different impact on share price development. Specifically, transparency does not turn out to be a significant variable, whereas ethical behavior is significant in relation to share price variation, with a regression coefficient equal to 3.462, although with an R^2 equal to 0.1%. These results imply that hypothesis 5 is rejected while hypothesis 6 is accepted. However, in this latter case, the result must be interpreted with caution given the little variation explained by ethical behavior.

There is one possible explanation why integrity explains only 11.3% of share price variation and that two of the attributes comprising it are either not significant or explain a small proportion of the variance. This indicates that changes in the stock market cannot be explained by the perception that the company behaves in an ethical and transparent way, considered in isolation. In other words, the market does not dis-

Table 6
Linear regressions with interaction effects.

Variables	Coefficients	Standard Error	t-stat	Pr > t
Linear regression 1: CR as a dependent variable				
Constant	3.146	0.599	8.432	0.000***
Integrity of governance	0.128	0.077	3.372	0.000***
Integrity of governance x Share price variation	0.046	0.065	6.467	0.011**
Linear regression 2: Recommendations as a dependent variable				
Constant	-35.873	11.726	-4.175	0.005***
CR	5.709	1.625	3.234	0.003***
Linear regression 3: Share price variation as a dependent variable				
Constant	3.625	0.034	136.872	0.000***
Recommendations	0.032	0.005	2.943	0.005***
Linear regression 4: Share price variation as a dependent variable				
Constant	-11.374	7.852	-1.509	0.138
Integrity of governance	4.735	1.207	3.376	0.000***
Integrity of governance x Recommendations	0.123	0.766	2.348	0.043*
Linear regression 5: Share price variation as a dependent variable				
Constant	11.952	4.126	2.765	0.006***
Transparency	0.721	0.615	1.574	0.167
Linear regression 6: Share price variation as a dependent variable				
Constant	-5.672	7.483	-0.670	0.673
Ethical behavior	3.462	1.135	2.973	0.003***

Note: Only includes the interaction effects that are statistically significant.
 Linear regression 1: $R^2 = 0.671$; St. Error of estimation = 1.467; F. = 11.842***.
 Linear regression 2: $R^2 = 0.059$; St. Error of estimation = 3.651; F. = 9.818***.
 Linear regression 3: $R^2 = 0.224$; St. Error of estimation = 0.099; F. = 8.614***.
 Linear regression 4: $R^2 = 0.113$; St. Error of estimation = 22.460; F. = 10.728***.
 Linear regression 5: $R^2 = 0.017$; St. Error of estimation = 25.849; F. = 9.897***.
 Linear regression 6: $R^2 = 0.001$; St. Error of estimation = 3.711; F. = 9.985***.
 * $p < 0.05$. ** $p < 0.01$ *** $p < 0.001$.

tinguish between the two characteristics and forms an overall view of the way the public and the media perceive companies' integrity of governance. Consequently, the results of this work confirm those of other authors [27,35,78,94,104]. It can therefore be concluded that integrity, considered globally, has an impact on the daily stock returns of companies.

As far as transparency is concerned, and despite not showing a relationship with share price, the comparison between the results from the literature to date and those from this work are complicated. This may be due to the fact that the concept of transparency perceived by the public is not the same as that held by managers, workers or other experts whose opinions are used in the majority of studies. In other words, as confirmed by Ewer [40], whilst the latter values very specific information which facilitates their decision-making, the second does not reduce the concept of transparency to this type of information.

However, in the case of the relationship between ethical behavior and share price variation, the results of our research, albeit modest, are in keeping not only with that proposed by Bowie [16,17] through examples, but also with that demonstrated empirically by other authors [27,35,78,94,103,104]. Despite this, and as stated by McMurrin and Matulich [74], there are still companies that act in a way which is contrary to what is considered to be ethical behavior, trusting that they will not be discovered. Even so, the argument about the presence of these companies only reinforces the belief in the importance of business ethics, as this argument implies the need to hide unethical behavior, precisely because of fear of its repercussions.

Finally, the conclusions regarding the working hypotheses are summarized in Table 7. It can be seen that all the relationships analyzed are demonstrated, with the exception of the relationship between the share price variation of a company and transparency, as perceived by stakeholders in the online environment, which has not been demonstrated.

5. Conclusions

Even though the relationships between the integrity of governance of companies, CR, stock market recommendations and share price have received some attention from researchers, most of them have dealt with this using opinions and publications collected through surveys or interviews. This work contributes to the creation of literature by providing evidence of the existence of such relationships in the online environment. This involves gathering opinions that are generally published spontaneously and immediately after the events that generate them, coming from a variety of audiences and providing a large amount of information. Specifically, it has demonstrated that the integrity of governance of companies is a component that contributes significantly to the formation of their CR. This is very important since CR, considered in all

Table 7
Conclusions about the hypothesis.

Variable	Conclusion
H1: The integrity of governance perceived in the online environment has a positive impact on the CR perceived in the online environment	Accepted
H2: The CR perceived in the online environment has a positive impact on the recommendations that financial analysts publish on the internet about investments in a company's shares	Accepted
H3: Analyst recommendations made in open financial forums in the online environment will have an impact on a company's stock price	Accepted
H4: The integrity of governance perceived in the online environment has a positive impact on share price	Accepted
H5: The transparency perceived in the online environment has a positive impact on a company's share price	Rejected
H6: Ethical behavior, as perceived in the online environment, has a positive impact on share price	Accepted

its dimensions, is a factor that financial analysts take into account when recommending whether or not to invest in a company's shares. In turn, both the perception of the integrity of companies and the analysts' recommendations have an impact on share price.

Given that this study has been shown to be largely in keeping with much of the written literature on the relationship between reputational aspects and business results, the online environment is validated as a very valuable source of information for both academics and companies interested in these topics. Moreover, given the Internet's great importance today for the dissemination of information and the verification that the perceptions of stakeholders may influence share prices, a significant practical implication can be extracted from this work: the need for companies to monitor the information provided by stakeholders in this area on the different Internet platforms. This monitoring would allow companies to design an action protocol for the prevention and diagnosis of reputation crises that influence the markets. This is especially relevant for certain sectors, such as the telecommunications and banking sectors, which are especially susceptible to reputational risks that are easily and quickly spread over the Internet. To this end, companies need to invest in techniques for the processing of big data and business intelligence.

Just as studies based on analyzing information which does not include the opinions and information published in the online environment have that as a limitation, our study suffers from the same limitation, although in the opposite way. For this reason, it would be advisable for future research to develop 360° studies that combine information from both environments. In addition, although the automated semantic analysis allows results to be based on a considerable volume of data and has been widely accepted by current researchers, given the high percentage of effectiveness [22,26,61,69], there is a loss of specificity. In any case, this study aims to be a first step that helps the research community to continue addressing the relationships between reputational aspects and business results, including a wide range of information sources.

Acknowledgements

This work was supported by the Universidad de Málaga, Spain [grant: Proyect PPIT.UMA.B1.2017/05].

References

- [1] A. Alam, S. Khusro, I. Ullah, M.S. Karim, Confluence of social network, social question and answering community, and user reputation model for information seeking and experts generation, *J. Inf. Sci.* 43 (2) (2017) 260–274 <https://doi.org/10.1177%2F0165551516637322>.
- [2] R. Ali, R. Lynch, T.C. Melewar, Z. Jin, The moderating influences on the relationship of corporate reputation with its antecedents and consequences: a meta-analytic review, *J. Bus. Res.* 68 (5) (2015) 1105–1117, doi:10.1016/j.jbusres.2014.10.013.
- [3] A. Akhigbe, J.E. McNulty, B.A. Stevenson, How does transparency affect bank financial performance?, *Int. Rev. Financ. Anal.* 29 (2013) 24–30, doi:10.1016/j.irfa.2013.01.007.
- [4] A. Akhigbe, J.E. McNulty, B.A. Stevenson, Additional evidence on transparency and bank financial performance, *Rev. Financ. Econ.* 32 (1) (2017) 1–6, doi:10.1016/j.rfe.2016.09.001.
- [5] S.F.S. Alwi, S.M. Ali, B. Nguyen, The importance of ethics in branding: mediating effects of ethical branding on company reputation and brand loyalty, *Bus. Ethics Q.* 27 (3) (2017) 393–422, doi:10.1017/beq.2017.20.
- [6] M. Alonso, Transparencia de las empresas para la confianza de los stakeholders a través de Internet: un análisis empírico, *Hitos Cienc. Econ. Admin.* 43 (2009) 105–114.
- [7] A. Armstrong, R.D. Francis, Loss of integrity: the true failure of the corporate sector, *J. Law Gov.* 3 (3) (2008), doi:10.15209/jbsge.v3i3.137.
- [8] P. Asquith, M. Mikhail, A. Au, Information content of equity reports, *J. Financ. Econ.* 75 (2) (2005) 245–282, doi:10.1016/j.jfineco.2004.01.002.
- [9] E. Baraibar-Diez, L.L. Sotorrío, The mediating effect of transparency in the relationship between corporate social responsibility and corporate reputation, *Rev. Bras. Gest. N.* 20 (1) (2018) 5–21.
- [10] E. Baraibar-Diez, M.D. Odriozola, J.L. Fernández, A survey of transparency: an intrinsic aspect of business strategy, *Bus. Strat. Environ.* 26 (4) (2017) 480–489, doi:10.1002/bse.1931.

- [11] B. Barber, R. Lehavy, M. McNichols, B. Trueman, Reassessing the returns to analysts' stock recommendations, *Financ. Anal. J.* 59 (2) (2003) 88–96, doi:10.2469/faj.v59.n2.2517.
- [12] R.G. Barker, The market for information – evidence from finance directors, analysts and fund managers, *Account. Bus. Res.* 29 (1) (1998) 3–20, doi:10.1080/00014788.1998.9729563.
- [13] C. Bidwell, How good is institutional brokerage research?, *J. Portfolio Manag.* 3 (2) (1977) 26–31, doi:10.3905/jpm.1977.26.
- [14] J. Bjerring, J. Lakonishok, T. Vermaelen, Stock prices and financial analysts' recommendations, *J. Finance* 38 (1) (1983) 187–204, doi:10.1111/j.1540-6261.1983.tb03634.x.
- [15] Bloomberg Executives sued by SEC over Bob Marley pump-and-dump scheme <https://www.bloomberg.com/news/2015-16-October-2020>
- [16] N.E. Bowie, A kantian theory of meaningful work, *J. Bus. Ethics* 17 (9–10) (1998) 1083–1092.
- [17] N.E. Bowie Companies are discovering the value of ethics https://www.yourhomeworksolutions.com/wp-content/uploads/edd/2020/06/epdf.pub_beyond-integrity-a-judeo-christian-approach-to-bus.pdf#page=431998s17-October-2020
- [18] B.K. Boyd, D.D. Bergh, D.J. Ketchen, Reconsidering the reputation—performance relationship: a resource-based view, *J. Manag.* 36 (3) (2010) 588–609, doi:10.1177/0149206308328507.
- [19] M. Brauer, M. Wiersema, Analyzing analyst research: a review of past coverage and recommendations for future research, *J. Manag.* 44 (1) (2018) 218–248 <https://doi.org/10.1177%2F0149206317734900>.
- [20] G. Breton, R.J. Taffler, Accounting information and analyst stock recommendation decisions: a content analysis approach, *Account. Bus. Res.* 31 (2) (2001) 91–101, doi:10.1080/00014788.2001.9729604.
- [21] G. Capelle-Blancard, A. Petit, Every little helps? ESG news and stock market reaction, *J. Bus. Ethics* 157 (2) (2019) 543–565, doi:10.1007/s10551-017-3667-3.
- [22] A.E.O. Carosia, G.P. Coelho, A.E.A. Silva, Analyzing the Brazilian financial market through Portuguese sentiment analysis in social media, *Appl. Artif. Intell.* 34 (1) (2020) 1–19, doi:10.1080/08839514.2019.1673037.
- [23] E. Carreras, A. Alloza, A. Carreras, *Corporate Reputation*, LID Publishing, London, 2013.
- [24] A.M. Casado-Molina, C.M. Ramos, M.M. Rojas-de-Gracia, J.I. Peláez, Reputational intelligence: innovating brand management through social media data, *Ind. Manag. Data Syst.* 120 (1) (2019) 40–56, doi:10.1108/IMDS-03-2019-0145.
- [25] F.W. Chen, A. Guevara Plaza, P. Alarcon Urbistondo, Automatically extracting tourism-related opinion from Chinese social media, *Curr. Issues Tourism* 20 (10) (2017) 1070–1087, doi:10.1080/13683500.2015.1132196.
- [26] M. Cheng, Sharing economy: a review and agenda for future research, *Int. J. Hosp.* 57 (2016) 60–70, doi:10.1016/j.ijhm.2016.06.003.
- [27] J. Chun, Y. Shin, J. Choi, K. Kim, How does corporate ethics contribute to firm financial performance? The mediating role of collective organizational commitment and organizational citizenship behavior?, *J. Manag.* 39 (4) (2013) 853–877, doi:10.1177/0149206311419662.
- [28] D. Cormier, M. Magnan, Does a firm's exposure to ethical failures matter to financial markets? A governance perspective, *J. Manag. Govern.* 21 (2) (2017) 267–289.
- [29] K. Cravens, E.G. Oliver, S. Ramamoorti, The reputation index: measuring and managing corporate reputation, *Eur. Manag. J.* 21 (2) (2003) 201–212, doi:10.1016/S0263-2373(03)00015-X.
- [30] G. De Graaf, Z. Van Der Wal, Managing conflicting public values: governing with integrity and effectiveness, *Am. Rev. Publ. Adm.* 40 (6) (2010) 623–630, doi:10.1177/0275074010375298.
- [31] J.M. De la Fuente, E. De Quevedo, Empirical analysis of the relationship between corporate reputation and financial performance: a survey of the literature, *Corp. Reput. Rev.* 6 (2) (2003) 161–177, doi:10.1057/palgrave.crr.1540197.
- [32] E. Dimson, P. Marsh, An analysis of brokers' and analysts' unpublished forecasts of UK stock returns, *J. Finance* 39 (5) (1984) 1257–1292, doi:10.1111/j.1540-6261.1984.tb04907.x.
- [33] C. Dellarocas, The digitization of word of mouth: promise and challenges of online feedback mechanisms, *Manag. Sci.* 49 (10) (2003) 1407–1424, doi:10.1287/mnsc.49.10.1407.17308.
- [34] C. Eckert, Corporate reputation and reputation risk. Definition and measurement from a (risk) management perspective, *J. Risk Finance* 18 (2) (2017) 145–158, doi:10.1108/JRF-06-2016-0075.
- [35] F.A. Elayan, J. Li, Z.F. Liu, T.O. Meyer, S. Felton, Changes in the covalence ethical quote, financial performance and financial reporting quality, *J. Bus. Ethics* 134 (3) (2016) 369–395, doi:10.1007/s10551-014-2437-8.
- [36] Y. Elshwikh, A trust and reputation model for quality assessment of online content, *Int. J. Adv. Comput. Sci. Appl.* 8 (3) (2017) 58–61.
- [37] M. Etter, E. Colleoni, L. Illia, K. Meggiorin, A. D'Eugenio, Measuring organizational legitimacy in social media: assessing citizens' judgments with sentiment analysis, *Bus. Soc.* 57 (1) (2018) 60–97 <https://doi.org/10.1177%2F0007650316683926>.
- [38] M. Etter, D. Ravasi, E. Colleoni, Social media and the formation of organizational reputation, *Acad. Manag. Rev.* 44 (1) (2019) 28–52, doi:10.5465/amr.2014.0280.
- [39] M. Evans, Beyond the integrity paradox—towards 'good enough' governance?, *Pol. Stud. J.* 33 (1) (2012) 97–113, doi:10.1080/01442872.2011.637324.
- [40] S.R. Ewer, Transparency and understandability, but for whom?, *CPA J.* 77 (2) (2007) 16–18.
- [41] H. Fasaai, M.P. Tempelaar, J.J. Jansen, Firm reputation and investment decisions: the contingency role of securities analysts' recommendations, *Long. Range Plan.* 51 (5) (2018) 680–692, doi:10.1016/j.lrp.2017.07.010.
- [42] O.C. Ferrell, D.E. Harrison, L. Ferrell, J.F. Hair, Business ethics, corporate social responsibility, and brand attitudes: an exploratory study, *J. Bus. Res.* 95 (2019) 491–501, doi:10.1016/j.jbusres.2018.07.039.
- [43] C.J. Fombrun, C. Foss, Business ethics: corporate responses to scandal, *Corp. Reput. Rev.* 7 (3) (2004) 284–288, doi:10.1057/palgrave.crr.1540226.
- [44] C.J. Fombrun, L.J. Ponzi, W. Newbury, Stakeholder tracking and analysis: the RepTrak® system for measuring corporate reputation, *Corp. Reput. Rev.* 18 (1) (2015) 3–24, doi:10.1057/crr.2014.21.
- [45] C.J. Fombrun, N.A. Gardberg, Who's tops in corporate reputation?, *Corp. Reput. Rev.* 3 (1) (2000) 13–17, doi:10.1057/palgrave.crr.1540095.
- [46] J. Francis, L. Soffer, The relative informativeness of analysts' stock recommendations and earnings forecast revisions, *J. Account. Res.* 35 (2) (1997) 193–211, doi:10.2307/2491360.
- [47] L. Frieder, J. Zittrain, Spam works: evidence from stock touts and corresponding market activity, *Hastings Comm. & Ent. LJ* 30 (2007) 479–520.
- [48] C. Gabbioneta, D. Ravasi, P. Mazzola, Exploring the drivers of corporate reputation: a study of Italian securities analysts, *Corp. Reput. Rev.* 10 (2) (2007) 99–123, doi:10.1057/palgrave.crr.1550048.
- [49] N.A. Gardberg, S.C. Zyglidopoulos, P.C. Symeou, D.H. Schepers, The impact of corporate philanthropy on reputation for corporate social performance, *Bus. Soc.* 58 (6) (2019) 1177–1208 <https://doi.org/10.1177%2F0007650317694856>.
- [50] D. Goff, H. Hulburt, T. Keasler, Isolating the information content of equity analysts' recommendation changes, *Post Reg FD, Financ. Rev.* 43 (2) (2008) 303–321, doi:10.1111/j.1540-6288.2008.00195.x.
- [51] J. Groth, W. Lewellen, G. Schlarbaum, R. Lease, An analysis of brokerage house securities recommendations, *Financ. Anal. J.* 35 (1) (1979) 32–40, doi:10.2469/faj.v35.n1.32.
- [52] R.W. Grupp, L. Gaines-Ross, Reputation management in the biotechnology industry, *J. Biocomm. Biotechnol.* 9 (1) (2002) 17–26, doi:10.1057/palgrave.jcb.3044003.
- [53] B.W. Head, The contribution of integrity agencies to good governance, *Pol. Stud. J.* 33 (1) (2012) 7–20, doi:10.1080/01442872.2011.601200.
- [54] F. Herrera, E. Herrera-Viedma, Linguistic decision analysis: steps for solving decision problems under linguistic information, *Fuzzy Set Syst.* 115 (1) (2000) 67–82, doi:10.1016/S0165-0114(99)0024-X.
- [55] L.W.J.C. Huberts, Pathology of the state: Diagnosing in terms of corruption or integrity, in: D. Argyriades, O.P. Dwivedi, J.G. Jabra (Eds.), *Public Administration in Transition. A Fifty-Year Trajectory Worldwide. Essays in Honor of Gerald E. Caiden*, Vallentine Mitchell, London, 2007, pp. 202–217.
- [56] L.L. Huberts, *The Integrity of Governance: what it Is, what We Know, what Is Done and where to Go*, Palgrave Macmillan, New York, 2014.
- [57] L.W.J.C. Huberts, Integrity: what it is and why it is important, *J. Public Int.* 20 (sup1) (2018) S18–S32, doi:10.1080/10999922.2018.1477404.
- [58] L.L. Huberts, M.M. Kaptein, K.K. Lasthuizen, A study of the impact of three leadership styles on integrity violations committed by police officers, *Policing* 30 (4) (2007) 587–607, doi:10.1108/13639510710833884.
- [59] D. Ingenhoff, A. Buhmann, Advancing PR measurement and evaluation: demonstrating the properties and assessment of variance-based structural equation models using an example study on corporate reputation, *Publ. Relat. Rev.* 42 (3) (2016) 418–431, doi:10.1016/j.pubrev.2015.11.010.
- [60] I. Ioannou, G. Serafeim, The impact of corporate social responsibility on investment recommendations: analysts' perceptions and shifting institutional logics, *Strat. Manag. J.* 36 (7) (2015) 1053–1081, doi:10.1002/smj.2268.
- [61] X. Jin, Y. Wang, Chinese outbound tourism research: a review, *J. Trav. Res.* 55 (4) (2016) 440–453, doi:10.1177/0047287515608504.
- [62] S. Kim, J.-C. Lin, M. Slovin, Market structure, informed trading, and analysts' recommendations, *J. Financ. Quant. Anal.* 32 (4) (1997) 507–524, doi:10.2307/2331235.
- [63] E.H. Kim, Y.N. Youm, How do social media affect analyst stock recommendations? Evidence from S&P 500 electric power companies, Twitter accounts, *Strategic Manag. J.* 38 (13) (2017) 2599–2622, doi:10.1002/smj.2678.
- [64] P. Klein, Measure what matters: corporate image, *Commun. World* 16 (9) (1999) 32–33.
- [65] K.M. Klimczak, M. Dynel, Evaluation markers and mitigators in analyst reports in light of market response to stock recommendations, *Int. J. Bus. Commun.* 55 (3) (2018) 310–337, doi:10.1177/2329488417738082.
- [66] B. Kotras, Opinions that matter: the hybridization of opinion and reputation measurement in social media listening software, *Media Cult. For. Soc.* 42 (7–8) (2020) 1495–1511, doi:10.1177/0163443720939427.
- [67] T. Laor, Y. Galily, Offline VS online: attitude and behavior of journalists in social media era, *Technol. Soc.* 61 (2020) 101239, doi:10.1016/j.techsoc.2020.101239.
- [68] C.H. Lin, H.L. Yang, D.Y. Liou, The impact of corporate social responsibility on financial performance: evidence from business in Taiwan, *Technol. Soc.* 3 (1) (2009) 56–63, doi:10.1016/j.techsoc.2008.10.004.
- [69] X. Liu, Z. Li, Grouping tourist complaints: what are inbound visitors' problems with Chinese destinations?, *Asia Pac. J. Tour. Res.* 24 (4) (2019) 348–364, doi:10.1080/10941665.2018.1564682.
- [70] D.M. Long, C. Wann, C. Brockman, Unethical business behavior and stock performance, *Acad. Account. Financ. Stud. J.* 20 (3) (2016) 115.
- [71] D. Logue, D. Tuttle, Brokerage house investment advice, *Financ. Rev.* 8 (1972) 38–54, doi:10.1111/j.1540-6288.1973.tb01440.x.
- [72] X. Luo, H. Wang, S. Raitel, Q. Zheng, Corporate social performance, analyst stock recommendations, and firm future returns, *Strat. Manag. J.* 36 (1) (2015) 123e136, doi:10.1002/smj.2219.
- [73] F. Matozza, A.M. Biscotti, E. Mafrolla, Financial reputation repair through environmental performance, *Sustain. Account. Manag. Policy J.* 10 (5) (2019) 798–821, doi:10.1108/SAMPJ-05-2018-0134.
- [74] R.C. McMurrian, E. Matulich, Building customer value and profitability with business ethics, *J. Bus. Econ. Res.* 4 (11) (2006) 11–17.
- [75] M.B. Mikhail, B.R. Walther, R.H. Willis, When security analysts talk, who listens?, *Account. Rev.* 82 (5) (2007) 1227–1253, doi:10.2308/accr.2007.82.5.1227.

- [76] M. Mili, S. Gharbi, F. Teulon, Business ethics, company value and ownership structure, *J. Manag. Govern.* 23 (4) (2019) 973–987, doi:10.1007/s10997-019-09475-z.
- [77] M. Orlitzky, Social responsibility and financial performance: trade-off or virtuous circle, *Univ. Auckland Bus. Rev.* 7 (1) (2005) 37–43.
- [78] M. Orlitzky, F. Schmidt, S. Rynes, Corporate social financial performance: a meta-analysis, *Organ. Stud.* 24 (3) (2003) 403–441, doi:10.1177/0170840603024003910.
- [79] H.S.T. Pham, H.T. Tran, CSR disclosure and firm performance: the mediating role of corporate reputation and moderating role of CEO integrity, *J. Bus. Res.* 120 (2020) 127–136, doi:10.1016/j.jbusres.2020.08.002.
- [80] L.J. Ponzi, C.J. Fombrun, N.A. Gardberg, RepTrak pulse: conceptualizing and validating a short-form measure of corporate reputation, *Corp. Reput. Rev.* 14 (1) (2011) 15–35, doi:10.1057/crr.2011.5.
- [81] C.M. Ramos, A.M. Casado-Molina, Online corporate reputation: a panel data approach and a reputation index proposal applied to the banking sector, *J. Bus. Res.* 122 (2021) 121–130.
- [82] D. Ravasi, V. Rindova, I. Stigliani, The stuff of legend: history, memory, and the temporality of organizational identity construction, *Acad. Manag. J.* 62 (5) (2019) 1523–1555, doi:10.5465/amj.2016.0505.
- [83] V. Rosenblatt, Hierarchies, power inequalities, and organizational corruption, *J. Bus. Ethics* 111 (2) (2012) 237–251, doi:10.1007/s10551-012-1204-y.
- [84] SEC SEC charges three penny stock promoters behind pump-and-dump schemes <https://www.sec.gov/News/PressRelease/Detail/PressRelease/13705434703092014s> 15 October 2020
- [85] P.J. Shoemaker, S.D. Reese, *Mediating the Message in the 21st Century: A Media Sociology Perspective*, Routledge, New York, 2013.
- [86] M. Siering, The economics of stock touting during Internet-based pump and dump campaigns, *Inf. Syst.* 29 (2) (2019) 456–483, doi:10.1111/isj.12216.
- [87] M. Siering, B. Clapham, O. Engel, P. Gomber, A taxonomy of financial market manipulations: establishing trust and market integrity in the financialized economy through automated fraud detection, *J. Inf. Technol.* 32 (3) (2017) 251–269, doi:10.1057/s41265-016-0029-z.
- [88] T.M. Stevens, N. Aarts, C.J.A.M. Termeer, A. Dewulf, Social media hypes about agro-food issues: activism, scandals and conflicts, *Food Pol.* 79 (2018) 23–34, doi:10.1016/j.foodpol.2018.04.009.
- [89] S.E. Stickel, Reputation and performance among security analysts, *J. Finance* 47 (5) (1992) 1811–1836, doi:10.1111/j.1540-6261.1992.tb04684.x.
- [90] S.E. Stickel, The anatomy of the performance of buy and sell recommendations, *Financ. Anal. J.* 51 (5) (1995) 25–39, doi:10.2469/faj.v51.n5.1933.
- [91] K.L. Tan, S. Imam, M.M. Babu, The use of information by financial analysts during a financial crisis, *Strat. Change* 28 (5) (2019) 369–379, doi:10.1002/jsc.2291.
- [92] Thomson Reuters Eikon Thomson Reuters ESG scores <http://zeeroverly.nl/blogfiles/esg-scores-methodology.pdf> 2018s 14 October 2020
- [93] B. Twedt, L. Rees, Reading between the lines: an empirical examination of qualitative attributes of financial analysts' reports, *J. Account. Publ. Pol.* 31 (1) (2012) 1–21, doi:10.1016/j.jaccpubpol.2011.10.010.
- [94] K. Ugoji, N. Dando, L. Moir, *Does Business Ethics Pay? Revised, the Value of Ethics Training*, Institute of Business Ethics, London, 2007.
- [95] United Nations, Economic and Social Commission for Asia and the Pacific "What is Good Governance?", n. d. <https://www.unescap.org/sites/default/files/good-governance.pdf> (accessed 13 March 2020).
- [96] Z. Van der Wal, L.W.J.C. Huberts, J.H.J. van den Heuvel, E.W. Kolthoff, Central values of government and business: differences, similarities and conflicts, *Publ. Adm. Q.* 30 (3) (2006) 314–364.
- [97] C.B.M. Van Riel, *Alinear para Ganar*, Lid Editorial Empresarial, Madrid, 2012.
- [98] S.R. Veil, T.L. Sellnow, E.L. Petrun, Hoaxes and the paradoxical challenges of restoring legitimacy: Dominos' response to its YouTube crisis, *Manag. Commun. Q.* 26 (2) (2012) 322–345 <https://doi.org/10.1177/0893318911426685>.
- [99] P. Verhezen, The (ir) relevance of integrity in organizations, *Public Integr.* 10 (2) (2008) 133–149, doi:10.2753/PIN1099-9922100203.
- [100] P. Verhezen, Giving voice in a culture of silence. From a culture of compliance to a culture of integrity, *J. Bus. Ethics* 96 (2) (2010) 187–206, doi:10.1007/s10551-010-0458-5.
- [101] S. Vig, K. Dumičić, Impact of commitment to business ethics to nonfinancial business performance, *Interdiscip. Descri. Complex Syst.* 14 (2) (2016) 165–181, doi:10.7906/indecs.14.2.6.
- [102] S. Vig, K. Dumičić, I. Klopotan, The impact of reputation on corporate financial performance: median regression approach, *Bus. Syst. Res. J.* 8 (2) (2017) 40–58, doi:10.1515/bsrj-2017-0015.
- [103] S. Vitell, E. Ramos, The impact of corporate ethical values and enforcement of ethical codes on the perceived importance of ethics in business: a comparison of U.S. and Spanish managers, *J. Bus. Ethics* 64 (1) (2006) 31–43, doi:10.1007/s10551-005-4664-5.
- [104] S.A. Waddock, S.B. Graves, The corporate social performance-financial performance link, *Strat. Manag. J.* 18 (4) (1997) 303–319 [https://doi.org/10.1002/\(SICI\)1097-0266\(199704\)18:4<303::AID-SMJ869>3.0.CO;2-G](https://doi.org/10.1002/(SICI)1097-0266(199704)18:4<303::AID-SMJ869>3.0.CO;2-G).
- [105] Wall Street Journal SEC charges 13 in ongoing sweep against illegal online stock touting <https://www.wsj.com/articles/SB9199892755519990001999s> 16 October 2020
- [106] K.T. Wang, W.W. Wang, Competition in the stock market with asymmetric information, *Econ. Model* 61 (2017) 40–49, doi:10.1016/j.econmod.2016.11.024.
- [107] S. Webley, Risk, reputation and trust, *J. Clin. Outcome Manag.* 8 (1) (2003) 9–12, doi:10.1108/13632540410807501.
- [108] K.L. Womack, Do brokerage analysts' recommendations have investment value?, *J. Finance* 51 (1) (1996) 137–167, doi:10.1111/j.1540-6261.1996.tb05205.x.
- [109] J. Woolridge, Performance of stocks recommended by brokerages, *J. Invest.* 13 (1) (2004) 23–33, doi:10.3905/joi.2004.391039.
- [110] World Bank, *The Quality of Growth*, Oxford University Press, New York, 2000.
- [111] H.C. Yu, M.F. Kao, Y.C. Chen, B.Y. Tsai, Firm transparency and idiosyncratic risk, *Econ. Bus. Lett.* 6 (3) (2017) 81–87.
- [112] J. Zhai, Y. Cao, X.M. Ding, Integrity and stock market data analytic approach for manipulation detection in stock market, *Rev. Quant. Finance Account.* 50 (3) (2018) 897–932, doi:10.1007/s11156-017-0650-0.
- [113] E.W. Zuckerman, The categorical imperative: securities analysts and the illegitimacy discount, *Am. J. Sociol.* 104 (5) (1999) 1398–1438, doi:10.1086/210178.